Vol. II

TRANSCRIPT OF EVIDENCE

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, [illegible] ~~1922~~
~~1923~~
~~1924~~
1926

No. 1, Original.

THE STATE OF GEORGIA, COMPLAINANT,

vs.

THE TENNESSEE COPPER COMPANY AND THE DUCKTOWN SULPHUR, COPPER & IRON COMPANY, LIMITED.

TESTIMONY ON MOTION TO ENTER A FINAL DECREE AGAINST THE DUCKTOWN SULPHUR, COPPER & IRON COMPANY, LIMITED.

MOTION FILED FEBRUARY 24, 1914.

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VOLUME II.

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THE STATE OF GEORGIA
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TENNESSEE COPPER COMPANY and DUCKTOWN SULPHUR, COPPER AND IRON COMPANY, LIMITED.

799 W. M. STEPP, the next witness called, being first duly sworn, upon examination, deposed:

Direct examination.

By W. B. MILLER, Esq.:

Q. 1. What is your age Mr. Stepp?
A. I am fifty-two years old.
Q. 2. Where do you live?
A. Epworth, Georgia.
Q. 3. How long have you lived there?
A. I have lived there seven years.
Q. 4. Were you raised in North Georgia?
A. Yes, sir, I was raised right there close in about eight miles.
Q. 5. What is your occupation?
A. Well, I have been in the lumber business and in the mercantiling business mostly, for about eighteen years.
Q. 6. Carrying on your business there, in and around Epworth?
A. Yes, sir; well, my lumber business was up about eight or ten miles, about eight miles from there.
Q. 7. How far is Epworth from the Georgia line?
A. It is about three miles, I guess, about that.
Q. 8. Then, how far are you from the Tennessee Copper Company's furnace?
A. I expect an air course, straightway, I don't expect it is over three miles, it may be three and a half.
Q. 9. Then, how far are you from the Ducktown furnaces?
A. Well, from Epworth it is about seven or eight miles.
Q. 10. Do you remember Mr. Stepp, when the acid plants were installed in those furnaces?
A. Yes, sir.
Q. 11. About how long ago has that been?
800 A. Well, it has been—it has been six years ago, I reckon, somewhere along there.
Q. 12. Were you living in Epworth at that time?
A. Yes, sir.

Q. 13. During that time, what was the condition of vegetation around Epworth?

A. Why, it was—everything was scorched up pretty bad before that.

Q. 14. What was the cause of the vegetation being scorched?

A. Well, they claim it was the acid from the sulphur.

Q. 15. Did you see the smoke there in Epworth?

A. Yes, sir, some days there you could, and some you could not. It was not so bad.

Q. 16. In what direction is Epworth from the Tennessee furnace?

A. It is south.

Q. 17. The same course from the Ducktown Copper Company's furnace?

A. No, sir, it is not exactly the same course, it would be, the Ducktown furnace would be pretty near the same though.

Q. 18. What was the condition of the timber prior to the time the acid plants were started?

A. The timber was scorched up pretty bad before the acid plant was put in.

Q. 19. Did it kill any timber?

A. Yes, sir, it killed around Epworth there, a right smart.

Q. 20. What varieties of timber were principally killed?

A. I expect there was about a fourth of it.

Q. 21. What kinds, oak or what?

A. Yes, sir, oak.

Q. 22. Did it kill pine?

A. Yes, sir it killed pine.

801 Q. 23. Now, state Mr. Stepp, what effect the smoke has had on vegetation since the acid plant was established?

A. It has not done very much damage. It has done some damage. When they claimed there was something the matter with the plant, and they would let go the smoke, it happened once in a while.

Q. 24. What plant was that to which you refer?

A. That was the Tennessee Company.

Q. 25. You mean the Tennessee Company?

A. Yes, sir.

Q. 26. Which company is that?

A. The Tennessee Copper Company.

Q. 27. You refer to the one that is nearest to you?

A. Yes, sir.

Q. 28. Is there any difference in the size of those two furnaces?

A. I do not know, I have never been over to them, I have been over there, but I never paid much attention to the Isabella plant.

Q. 29. Is there any difference in the heighth of the stacks?

A. I suppose so, I think the Copper Hill Company's plant is the highest.

Q. 30. Is that the Tennessee Company?

A. Yes, sir.

Q. 31. Is or not that the company to which you refer when you speak of the furnace being out of fix, when the smoke comes over on you?

A. Yes, sir, that is the furnace. The reason I can tell, I have been around the store most of the time, and I can tell myself when something happens, and the hands says always that there is something the matter with the plant and they turn it loose down there.

Q. 32. Now, state Mr. Stepp, whether or not Epworth is
802 in an elevated section of the country?

A. Yes, sir. In an elevated section.

Q. 33. Can you see the Tennessee Copper Company's plant?

A. Yes, sir, out on the ridge from Epworth a little piece, you can see their plant, right close to it.

Q. 34. Can you see the Ducktown Copper Company's plant in Epworth?

A. I do not think you can. I never have noticed it. That is you can see the plant, you can mighty near see it, if you get up on some — the ridges around there.

Q. 35. Now, Mr. Stepp, since the establishment of these acid plants, what is the condition of the young growth—of the acid plants of these two companies, what is the condition of the growth of the timber in North Georgia, particularly around Epworth?

A. It is looking pretty well now, it is coming out fine. I think it looks all through that section, it is looking well, it is green and nice.

Q. 36. Can you tell there is any damage being done to it at all?

A. Well, if there is, I think it is mighty little. I cannot tell, it has killed any, since the acid plants were built down there.

Q. 37. Did you notice whether or not there is any new growth on any of the old timber?

A. Yes, sir, the old timber looks a great deal better the old timber looks a lots better where it has come out a right smart.

Q. 38. During the last season, Mr. Stepp, did you notice any damage that had been done to vegetation, or timber at all?

A. No, sir, I did not notice any timber at all, and very little about the vegetation during last year, but there has been some done this spring, but left down there on the vegetation for the last two or three years, that I could see.

Q. 39. Did you make a garden last year?

803 A. Yes, sir.

Q. 40. Was there any damage to that garden last year?

A. No, if there is any, I do not know it.

Q. *40*. How was it in 1912, that was the year before last?

A. I do not think it was damaged to amount to anything. Of course there might have been a few plants hurt a little, but I never paid any attention to it if there was.

Q. 41. You say there has been some damage this year, when was that?

A. That was—there has been about three times it was bad. I think it was bad the 28th of May, the smoke come over there and scorched up the stuff some, and about last Monday a week ago, I think it was, and then before that one time, before that, but I forget just exactly when that was.

Q. 42. Do you know what was the cause of that?

A. All I know, I was acquainted with lots of the men that worked there, they said that something got wrong, and they let the smoke out, they did not run it through the acid plant.

Q. 43. Over where do you mean?

A. At the plant.

Q. 44. Which plant?

A. At the Tennessee Copper Company's plant.

Q. 45. What was the condition of the apple crop in that section of the country, during the last year?

A. Well, they had a very good crop.

Q. 46. How was it the year before?

A. They had a very good crop.

Q. 47. How were the peaches?

A. There is no peaches in that country, hardly at all, there is a few trees through there, I do not think there is any peaches to amount to anything.

Q. 48. Are there corn fields in that section now?

A. Yes, sir, a good deal of corn raised through there.

804 Q. 49. Did the drouth have any *a*ffect on the crops through there this spring?

A. Yes, sir.

Q. 50. State whether or not it has been a very dry summer and spring.

A. Yes, sir, a very dry month, about six weeks I think.

Q. 51. Did you not have any rain at all?

A. No, no rain to amount to anything.

Q. 52. What *a*ffect did that have on vegetation?

A. It hurt that bad.

Q. 53. Have you noticed any special *a*ffect on the gardens this year from the smoke?

A. Yes, sir, I have some plants that have been bit this year, burnt up, the beans, and it bit the tomatoes and several things.

Q. 54. Was that the days you mentioned a while ago?

A. Yes, sir.

Q. 55. Two or three times?

A. Yes, sir.

Q. 56. One of those was last Monday week?

A. Yes, sir, I think that was the day.

Q. 57. Now, Mr. Stepp, you say that up at Epworth, *it* elevated?

A. Yes, sir.

Q. 58. And that you have seen the direction of the current there, the smoke current, and air currents?

A. Yes, sir. Yes, sir, it comes down when something gets wrong and settles in there.

Q. 59. State whether or not from your observation and what you know of the currents of the air, and the proximity of the Tennessee furnace, and the distance of the Ducktown furnace, and the drift of the currents of air from that furnace, if any of the damages which you have described since the establishment of the acid plants, could have come from the Ducktown furnace, or Isabella plant? 805

A. The Isabella furnace, you mean?

Q. 60. Yes.

A. No, I do not think so. I do not think it bothers us around Epworth at all. I noticed it comes from the other plant right up there, comes right over and settles down right up there, but I have never noticed any from the Isabella plant.

Cross-examination.

By J. A. **Drake**, Esq.:

Q. 61. You can see the Isabella or Ducktown Company's smoke from Epworth, can you not?

A. Yes, sir, you can see it from on top of them hills, just enough to notice it. I never did notice it that I can remember.

Q. 62. I will ask you if it is not due north from the Tennessee Company?

A. Well, it is about due north.

Q. 63. Which way is Epworth from the Tennessee Company?

A. It is west.

Q. 64. Epworth is west?

A. Yes.

Q. 65. To refresh you, I will ask you if on May 13th and 14th and again on May 28th, and last Monday, a week ago, which was June 8th, the smoke was not very bad all in that North Georgia section?

A. Well, there was about three days, that is has come over there pretty bad.

Q. 66. I will ask you whether or not you can see the smoke?

A. Yes, sir, you can see it.

Q. 67. Can you smell it?

A. Yes, sir.

Q. 68. How soon after it lights onto this vegetation, till the effects show up?

806 A. Well, it will show up pretty quick on them, right at once, no more than two or three hours. You go by in two or three hours and you will see where it has settled on some stuff.

Q. 69. What does it look like, Mr. Stepp, the effects of it?

A. Oh, just sort of looks like stuff scorched by fire, or something.

Q. 60. Like it had been scorched by fire?

A. Yes, sir, brown, turned brown.

Q. 61. Have you been over the North Georgia counties to observe the effects of the smoke?

A. No, I have not been over the counties, I have been around a right smart.

Q. 62. I will ask you if there is not a great deal of injured timber all in that North Georgia section, and has not it been injured from year to year, 1912, '13 and this year?

A. I do not think the timber has been injured since the acid plants were put in, to amount to anything. I do not believe it has. Of course it might have been, some think it does, I do not believe it has.

Q. 63. Until this year?

A. No, I do not think it has been injured this year.

Q. 64. Do you think that the scorching and injuring of the trees does not damage it?

A. It was so light, that I did not think it did. I never noticed any on the timber, it was mostly on the other stuff.

Q. 65. I will ask you if the effect on the trees does not show up worse in July and August than any other month of the year?

A. Well, it might do that, I could not say.

Q. 66. Well, how long have you been living over there?

A. I have been living over there seven years.

Q. 67. You observed that?

A. I have been living around there all my life, I was raised up there.

807 Q. 68. You have observed the effects enough to know the affects of the fumes, haven't you?

A. I do not know whether it was or not, I could not say.

Q. 69. Is not it worse on trees after the leaves are full grown and in the months of July and August, is not that your experience in observing it, that the effects are worse on leaves and timber in those months, than in any other month?

A. Yes, they might catch more of it, the leaves are bigger.

Q. 70. I am not asking that, I am asking if from your knowledge; that is true, that is the effect it has on it?

A. I just could not say about that.

Q. 71. You are not expert enough on it to answer that?

A. No, sir, I do not know whether it would or not.

Q. 72. Have you been over east of Blue Ridge, in the Flat creek country, and in there, it is just north of Blue Ridge?

A. No, sir, I have not been in that section.

Q. 73. I will ask you if just east from Blue Ridge, and leading from there right into Ducktown, and then on down into Gilmer County there is not a depression in the mountains, or gap, and if the prevailing winds are not from the northwest, and from the southeast, blowing to the northwest, is not that the way the winds generally blow?

A. I think so.

Q. 74. Has not that the effect of taking the smoke right down through and in the direction of that gap in the mountain, leading into Gilmer County, Georgia.

A. Yes, that might be, I could not say about that.

Q. 75. And does not the effect of this smoke reach out further from the plants in that direction than they do east or west from the plant?

A. Well, I could not say about that.

Q. 76. And does not the direction of the wind have a
808 great deal to do with the smoke, and the effect?

A. I think it does. It has something to do with the blowing of it around and scattering it.

Q. 77. And does not the atmospheric condition have a great deal to do with the damaging effect?

A. I do not know.

Q. 78. In other words, are not there times when the smoke seems to settle down more than it will at others?

A. Smoke never bothers us, only when something gets wrong with the acid plant, at all.

Q. 79. You only know that by hearsay?

A. I only know what I hear the men say, and I know they are telling me the truth.

Q. 80. You do not know that of your own knowledge?

A. No.

Q. 81. You only know that when the effect is bad, and the smoke comes down over Georgia there, and they tell you about it?

A. Yes, sir.

Q. 82. And when the wind is blowing from the north or northwest, is when you have trouble?

A. No, when the wind is coming from the north or east direction, is when it does. Before they put them acid plants up, it hurt all the timber.

Q. 83. You say you have been in Ducktown practically all your life?

A. Yes, sir.

Q. 84. In the timber business, or a merchant?

A. Yes, sir, timber business, I saw-milled eight years.

Q. 85. What I meant to get at, have you been a merchant more, or a timber man more?

A. Well, I have been a little more in the mercantile business, I am out of the lumber business.

Q. 86. Where were you in the mercantile business at?

A. At Copperhill, a good deal and up in the country
809 several years.

Q. 87. How long were you in Copperhill?

A. I was running a store there two years.

Q. 88. What years at Copperhill?

A. I was there last year, and four or five years ago I was there a year.

Q. 89. You were there last year with a store?

A. Yes, sir.

Q. 90. You never have worked for the copper companies any, have you.

A. No, sir.

Q. 91. Were you there prior to any of these operations of the copper companies, were you there in that section before any copper companies at all?

A. Yes, sir.

Q. 92. What were the conditions then as to timber?

A. Well, the timber was pretty good, that has been twenty-five or thirty years ago, there was not any sawmilling and any operations in Ducktown.

Q. 93. The hills were all green, and covered with leaves and timber?

A. There was some dead timber at that time. There was quite a streak of worms and they got on the hickory and chestnut and killed it a right smart.

Q. 94. Now, the hills are all bare and denuded of all trees?

A. No, we have a lot of scrub timber around there.

Q. 95. I am talking about in that immediate neighborhood?

A. Where abouts? Where I live?

Q. 95. Copperhill and Ducktown?

A. Right around Ducktown there is no timber, but you get up high, I live at Epworth, there is a good deal of timber.

Q. 97. I am talking about Ducktown, in the immediate neighborhood?

810 A. Yes.

Q. 98. There was no such damage there before then, as you have observed there since these plants have been there, and such as you have named up there this spring?

A. Before the plants were put up?

Q. 99. Yes, before the copper companies went into that country, you observed no such damage as you have described?

A. No, there was no such damage, only worms and things.

Q. 100. Is there or not more or less dead timber scattered through the woods, and does not it get worse going from the Georgia line, on south as far as ten or fifteen miles in through that gap that I spoke about?

A. I do not think it does. Of course, I am not sure. You mean down towards,——

Q. 101. Gilmer County?

A. Gilmer County, what gap are you talking about?

Q. 102. It is over here to the east, you know, this gap into the Flat Creek country.

A. The Flat Creek—well, I am not much acquainted with that section, I am not up there.

Q. 103. In your section I will ask you if the dead timber is not worse and more of it, the nearer you get to the plant, and the further you get from the plant does it not diminish as you go further away from the plant?

A. Yes, I think so.

Redirect examination.

By W. B. Miller, Esq.:

Q. 104. When was that dead timber killed, that you are speaking about?

A. It was killed before the plant was put up.

Q. 105. Has any of it been killed since then?

A. I do not think so. I do not think it has been strong
811 enough to kill timber around Epworth, over in my section.
I have not noticed any killed to amount to anything.

Q. 106. Since the acid plants were installed?

A. No, sir, I have not.

Q. 107. Well, I will get you to explain about Epworth being west of the Tennessee Copper Company's plant, is that right?

A. I said it was along there.

Q. 108. Is it not due south?

Mr. Drake: I am willing to let him refer to the map, I have here, there is Isabella, there is the Tennessee plant and there is Epworth. (Indicating).

The Witness: Well, I was mistaken in that.

Q. 109. It is south then, is it?

A. Yes, sir, I was mistaken, I called it wrong.

Q. 110. In what direction do the currents of air there go through?

A. Well, they just scatter out through the country there, near that, of course, when the north wind blows, it throws it back up over that country more.

Q. 111. Do your winds principally come from the north or south?

A. Them that fetch the smoke?

Q. 112. I am not talking about that which fetches the smoke?

A. Well, it comes from the south, I think, the east, and then we have a north wind, and a south wind there, so far as that is concerned, sometimes they are one way and sometimes another.

Recross-examination.

By J. A. Drake, Esq.:

Q. 113. If the wind was from the north, and these plants were
both running, and smoke comes out and comes to Epworth, or
where you live, would come on over and through and mix
812 with the Tennessee Copper Company's smoke, and the time
it would get through there to you, it would all be intermingled and together, wouldn't it?

A. It might mix up some, I never have noticed any damage done only when something went wrong down there at the plant, that is all I know about it.

Q. 114. When you say the plant, what plant do you mean?

A. The Tennessee Copper Company's plant.

Q. 115. You do not know that, only except as someone has told you about it, do you?

A. Well, that is all of course.

Q. 116. Well you swear positively that there was no trace of a tree—that there have been no trees killed in and around Epworth in the last two years, by smoke?

A. No, I would not do it, I would not swear positively, but I have not seen any of them killed by it.

Further this deponent saith not.

Sworn to and subscribed before me this 18th day of Juen, A. D. 1914.

——— ———,
Clerk and Master.

This distance travelled by this witness from his home to the place of taking depositions and returning, was a total of 228 miles, or 114 miles in each direction.

813 J. W. PELFREY, the next witness called, being first duly sworn, upon examination, deposed as follows:

Direct examination.

By W. B. MILLER, Esq.:

Q. 1. Mr. Pelfrey, how old are you?
A. Forty-five.
Q. 2. Where do you live?
A. I live in Fannin County, Georgia.
Q. 3. And how far from Copperhill, Tennessee, where the plant of the Tennessee Copper Company is located?
A. Why, an air course, it would be something like two miles and a half. I could not tell exactly.
Q. 4. What direction?
A. Southwest.
Q. 5. How long have you lived in that section?
A. I have lived there about twenty-two years.
Q. 6. What business are you engaged in?
A. I farm some, and a fruit grower, and run a merchandise business.
Q. 7. You knew that section of the country then, before the acid plants were built at Copperhill and Isabella?
A. Yes, sir.
Q. 8. What was the condition of vegetation in that section of the country before the acid plants were put into operation?
A. Well, we had some trouble with the smoke there, killing the timber to some extent and the vegetation.
Q. 9. What has been the conditions since the acid plants were put into operation?
A. Well, it has been a great deal better.
Q. 10. How many fruit trees, how many peach trees have you for instance, now in your orchard?
A. I have between fifty and sixty peach trees, I do not re-
814 member exactly.
Q. 11. How old are they?
A. About five to eight years old, I believe.
Q. 12. Are they bearing?
A. Yes, sir.
Q. 13. What quality of peaches do they yield?
A. They yield a good quality of peaches as a general thing.
Q. 14. Have you any apple trees?
A. Yes, sir.

Q. 15. How many apples trees have you?

A. I have fifteen hundred.

Q. 16. Do these apples trees yield fruit yet?

A. There is about three hundred that are bearing, or near that.

Q. 17. And what quality of fruit do they yield?

A. They yield a good quality of fruit except when bothered with draught, or something like that. We have a few droughts in there, that cut the size of the fruit off and cause the fruit to fall off a little early.

Q. 18. How far do you live from what is known as lot number twenty or the Howe mine?

A. My property lies adjoining the number twenty property on the west side.

Q. 19. From what does that Howe mine lot take its name? Why is it called the Howe mine lot?

A. It was a gentlemen by the name of Howe that owned the property, he bought the property, it was known as number twenty, that was the number of the lot he bought, before he bought the property.

Q. 20. It was known as lot number twenty in the allotment of lands in Georgia?

A. Yes, sir.

815 Q. 21. And the Howe mine is on that lot?

A. Yes, sir.

Q. 22. Was the timber cut off of that lot at any time?

A. Yes, sir.

Q. 23. And how many years was it cleaned off?

A. I do not remember exactly the years it has been, something like,—it must have been ten or twelve years since it was cut off.

Q. 24. Who had been the agent for this Howe property since that timber was cut off?

A. Old man Johnnie Quintrell, the father of J. H. Quintrell, he was there for some time and while the mines were running he was foreman or manager. He taken sick and died and Howe put John Henry Quintrell, as agent and manager.

Q. 25. Is that the John Henry Quintrell here as a witness?

A. Yes, sir.

Q. 26. What was done with the timber cut off of that lot?

A. They used it there at the mines for their fires, under the boilers, and for building timbers.

Q. 27. Has that Howe mine been in operation during the last few years?

A. No, sir, not anything.

Q. 28. Now, since that timber was cut off, I will get you to state whether or not, a new growth of timber has sprung up over that lot?

A. Yes, sir, there is a young growth over the property.

Q. 29. What is the condition as to healthfulness and strength, etcetera?

A. It looks like a healthy young growth of timber.

Q. 30. What distance is that from Copperhill, the copper plant of the Tennessee Copper Company?

816 A. I do not know, I could not say as to the air course, the distance as I would guess it would be about two miles, it is a half mile nearer than where I live.

Q. 31. It is between you and that section?

A. Yes, it lies east of my property.

Q. 32. Lies east of you?

A. Yes, it would make it about a half a mile nearer the Tennessee Copper Company's plant than my property.

Q. 33. It would make it more nearly south of the Tennessee Copper Company's plant than yours?

A. Yes, sir.

Q. 34. Yours is southwest, I believe?

A. Yes, sir.

Q. 35. What was the condition of the crops, and the orchards and the timber in that section last year, and the year before, 1912 and '13?

A. The conditions of crops were reasonably good We had a little drought during last year in the crops and also this year. Year before last the crops were reasonably good, the fruit crops were extra good.

Q. 36. When the smelting operations affect the forests and crops, do they also affect the fruit trees and destroy the peaches and apples?

A. Well, if they were to affect the forest sufficiently to kill it, it would affect the fruit trees I should think, to some extent.

Q. 37. They are just like other trees?

A. Yes, sir, about the same.

Q. 38. What has been the condition of the forests and fields, during the present year in your section, and east and west of you, that North Georgia country, upward to last Sunday or Monday a week ago?

817 A. It is, no,—there has not been any smoke on the leaves of the forest about there where I live. Now, at Frye Town, it is about a half mile of the smelters, there is a little sign of the smoke on the leaves of the timber down there, and also on the garden stuff and vegetation.

Q. 39. That is what direction?

A. North of me. It is right between where I live and the Tennessee Copper Company's plant.

Q 40. And you?

A. Yes, sir.

Q. 41. Now, if there was anything injured around there a week ago last Sunday or Monday or Tuesday, just tell us about it?

A. The smoke come over from the plant over there.

Q. 42. Which plant?

A. Supposed to be from the Tennessee Copper Company's plant.

Mr. **Drake**: We except to the answer on account of its being indefinite and a conclusion, and hearsay.

Objection overruled, and appeal prayed and granted.

Q. 43. Did you see the direction from which it was drifting?

A. I never paid any attention to it, to the way it was drifting; I seen the smoke there, but never paid any attention to the direction it came from.

Q. 44. How much nearer are you to the plant of the Tennessee Copper Company than to the other plant?

A. I could not say exactly, I do not know the exact distance, but just to the best of my judgment, it would be two miles and a half.

Q. 45. Now this smoke, that came there at this particualr time, what effect did it have on vegetation and timber?

818 A. It bit the leaves of the beans, garden beans and beat plants, bit them and turned them yellow.

Q. 46. Over what period of time was that smoke drifting through that section, through that country?

A. I never paid any attention to the exact time, I do not think it was more than a couple of hours though.

Q. 47. Well, did it do wholesale damage, or was the damage comparatively slight, tell us about that?

A. It was slight damage, only damaged garden beans, and small plants like these plants, and beat plants and tomatoes.

Q. 48. Did it kill any timber of consequence?

A. No, I never saw any killed, just saw a little signs of some yellow leaves on bushes here and there.

Mr. MILLER: That is all.

The WITNESS: This was over there at Frye Town, in about a half a mile or three quarters of the plant. This was not at my plant.

Q. 49. It did not effect it down at your place?

A. No, sir, not any at all.

Cross-examination.

By J. A. DRAKE, Esq.:

Q. 50. How far do you live from the Mobile mine, in Georgia? Do you know a mine named that?

A. Yes, sir. I do not know exactly the distance, we called it a mile. Out there we call it a mile.

Q. 51. How far and in what direction did you live from mine number two?

A. I lived nearly a west direction.

Q. 52. About how far?

819 A. My property joins that property on the west, the lots are supposed to be a half mile square, and the mine where they developed it is principally on the east side of number twenty property.

Q. 53. How far do you live from Mountain View Church, and which way?

A. Mountain View Church is on the same lot of land that I live on. It is something like between a fourth and an eighth of a mile.

Q. 54. I will ask you if there is not a series of hills between you and this plant?

A. I live,—what is called the dividing ridge, and it runs north straight towards the Tennessee Copper Company, and there is a small hill,—there are small hills up and down on that ridge.

Q. 55. Is there any hills between you and the Ducktown Copper Company?

A. Yes, sir.

Q. 56. I will ask you if you know anything about the prevailing winds in that section?

A. You mean do I know the direction the winds blow?

Q. 57. Yes, generally speaking.

A. Well, we generally have winds there from the north-west and from the south-east.

Q. 58. When the wind is blowing from the northwest, it blows smoke several miles east of you, would it not, down to Flat Creek Valley, towards Gilmer County,—look at this map. (Handing witness map.) You live over there close to Mountain View Church. Here is the Tennessee plant and here is the Ducktown plant at Isabella. Now, if the winds blow from the north-west,—that is north, and this is east (indicating). From the northwest, the prevailing winds are through this section and valley right in here, and blowing from this way, of course drives the smoke that way (indicating).

A. Yes, sir.

820 Q. 59. Then, how many miles east of you, would the smoke and fumes be driven, generally speaking?

A. They would be going from me, I could not tell you how many miles, they would dodge from this plant here, and gradually go further all the time.

Q. 60. I am speaking about here, from over there to here, about how many miles east they would pass you by, from that joinder to the nearest point would be right along here, there is the Tennessee Copper Company's plant, you are two and one half miles from there, and it would be about three and a half or four miles, wouldn't it, that the bulk of the smoke would pass?

A. That depends on how far it would be from the smelter.

Q. 61. I am talking about from Isabella plant there. It would miss you and go still further than from the Tennessee Company?

A. Yes, sir, it would send it further from me than it would from the Tennessee Company, of course.

Q. 62. Have you been through and made an inspection of the Flat Creek country east of Blue Ridge and through that district?

A. No, sir.

Q. 63. You have not made any investigation?

A. No, sir.

Q. 64. You do not know what the conditions over there are now?

A. No, sir, I have not made any inspection.

Q. 65. I will ask you if every time there is anything wrong with those plants, and the winds are in that direction, if the smoke does not get even over into your country, through and over those hills onto you?

A. We do not have any drifts of wind from their plant, to
821 send the smoke directly on us. I think from where I live,
that I know about—there is no drift there. The smoke
generally beats back on my place, and goes up in some other direction. There are changes of air.

Redirect examination.

By W. B. Miller, Esq.:

Q. 66. Do you know whether there is a chain of hills that extends completely along down between the Ducktown Company's plant at Isabella and the Tennessee state line?

A. You mean a chain of hills running from the Tennessee and Georgia state line?

Q. 67. A*n* chain of hills between the Georgia state line before you reach Isabella?

A. Yes, sir, after you cross the river.

Q. 68. Across the Ocoee River *River,* you are going towards Isabella, there is a chain of hills through there?

A. Yes, sir.

Q. 69. State whether or not tha*n* chain of hills is a good deal higher than the stack of the Ducktown Copper Company?

A. Of course a portion of that is, there might be a gap somewhere there that would not be higher, but not that I know of.

Q. 70. That gap is the gap that Potato Creek runs down from Isabella?

A. Yes, sir.

Q. 71. That is the biggest gap in that section?

A. Yes, sir.

Q. 72. And it runs down into the Ocoee River, considerably northwest from where you are?

—. ——.

822 Recross-examination.

By J. A. Drake, Esq.:

Q. 73. Don't you know that the Isabella plant is on higher ground than the Georgia State line, and the country between slopes down that way, to the river?

A. Yes, sir, that is owing to what part of the Georgia State line it is. Now, there is on that ridge that I spoke of, that runs from my property to the Tennessee Copper Company's plant, a high place that you can look up towards the Isabella plant, you cannot see through that piece.

Q. 74. But, looking from the southeast from this plant into the state of Georgia, I will ask you if there is not a depression and the valley opens up down toward Georgia, and the Flat Creek Valley?

A. I do not know anything about the Flat Creek Valley.

Q. 75. That is east of Blue Ridge, that country back east that I was showing you on that map located down southeast from the Isabella plant; does not the country gradually drift down hill, or, in other words, is not the Isabella plant on higher ground than the Tennessee plant?

A. Probably it is on higher ground, the Tennessee plant is down close to the river, down there where the Georgia state line crosses the river, but when you get out on either side, the line rises on higher ground.

Mr. DRAKE: That is all I care to ask.

Further this deponent saith not.

Sworn to before me, this 18th day of June, A. D., 1914.

——— ———,
Clerk & Master.

The distance travelled by this witness from his home to point of giving his deposition and return, is 246 miles, 123 miles in each direction. 823

J. C. QUINTRELL, the next witness, being first duly sworn, upon examination, deposed as follows:

Direct examination.

By *Mr.* W. B. MILLER, Esq.:

Q. 1. What is your age?

A. Forty-five.

Q. 2. Where do you reside?

A. In Fannin County, Georgia.

Q. 3. Were you raised in Fannin County, Georgia?

A. Yes, sir, my father moved to Fannin County when I was seven years old, six or seven.

Q. 4. How far did you- father live from the Tennessee Copper Company's plant?

A. About two miles, something like about two miles.

Q. 5. In what direction?

A. South, prior to the establishment of those acid plants. It was very near all killed on the farm.

Q. 6. When was it killed?

A. It was killed from the beginning of ninety-two I guess.

Q. *5.* (Interrupting:) Did any new growth come up on the place prior to the establishment of these acid plants?

A. No, sir, not to amount to anything at all. It would start up there, start up and be killed down each year.

Q. 8. Was it barren of timber?

A. Yes, sir, most all of the old forest timber was killed.

Q. 9. What kind of timber grew on it?

A. Well, general forest timber, oak, pop*u*lar, pine, white pine, chestnut.

824 Q. 10. Has all of that timber gone down?

A. Very near all.

Q. 11. What is the condition of it now?

A. Why it has a very nice young growth of timber coming on it now, seems to be growing.

Q. 12. How long has that young timber been growing?

A. Four or five years, something along like that.

Q. 13. Has it been growing ever since the acid plants were put in?

A. Yes, sir.

Q. 14. What is the character of that young timber, what are the varieties?

A. It is different kind, white oak, principally, more white oak than any other kind of timber on it now, the young growth.

Q. 15. What is the size of the young growth?

A. From two inches on up, different sizes.

Q. 16. How large?

A. Probably three and four inches, where you reach the best places.

Q. 17. Does it appear to be thrifty?

A. Yes, sir, very well. It looks well.

Q. 18. How does it compare with young timber elsewhere, miles away from this place?

A. I could not tell much difference in it.

Q. 19. You do not live now on your father's place?

A. No, I live three miles and a half from the old home place.

Q. 20. Where do you live?

A. I live at Epworth.

Q. 21. What do you do?

A. Saw milling. I have been selling goods and saw milling for the last three years.

825 Q. 22. Is that young timber on your father's farm, characteristic of the growth of young timber in the country?

A. It is better than it is right close to the plant, but it is something,—better as you get away from the plant a short distance.

Q. 23. Now, in regard to Epworth, was there any damage to the timber or vegetation around Epworth last year?

A. A little.

Q. 24. Did you raise a garden last year?

A. Yes, sir.

Q. 25. Did it do any damage to the garden?

A. No, sir, I do not consider it any?

Q. 26. Did you notice any damage to the gardens of anybody around Epworth, last year?

A. No, I do not know that it did. I wasn't in very many gardens, I was away from home the larger part of the time, in the meantime.

Q. 27. Did you have a good fruit crop out in that section of Georgia last year?

A. Yes, sir, a good fruit crop in our section.

Q. 28. Was there any damage to your corn last year?

A. Not that I knew of, no, not than I seen.

Q. 29. Did you notice any damage to any timber in that section?

A. No, sir, I did not notice any at the time, last year.

Q. 30. How was it in 1912?

A. Well, I never noticed much damage in 1912.

Q. 31. Have you noticed much damage since the establishment of these acid plants?

A. I know some little time now and then, you can see a little sign on the ends of the leaves. You would see a little sign on the end of the leaves, and young crops, but I have not seen any
826 timber that I thought was killed by the smoke at all.

Q. 32. How was it before the establishment of these acid plants?

A. Well, there was a lot of timber killed through that country there.

Q. 33. All around through Epworth and that section?

A. Yes, sir.

Q. 34. Was there any vegetation injured by the fumes?

A. Yes, sir, it was injured a right smart.

Q. 35. Can you see both the Tennessee furnace and the Ducktown furnace from your place?

A. Not from my home. I can see it by going just a very short distance from my home place. I do very frequently go up and look at it, and notice the way the drafts are coming.

Q. 36. Have you noticed the smoke coming from the furnace?

A. Yes, sir, I have noticed that a great many times.

Q. 37. State whether or not in your judgment, any of the *blithe* damage you have mentioned since the establishment of the acid plants, could possibly have come from the Isabella furnace?

Mr. DRAKE: We except to the question and answer to be given, because it is a conclusion of the witness, without any facts to base it on.

Objection overruled, appeal prayed and granted.

A. Well, I could not say positively as to where the smoke come from, all the time. I have watched the smoke come from over, when it would come there, from the Tennessee Copper Copany, into our section, but it comes there sometimes when I have not been able to be on the hills where I could see it.

827 Q. 38. I am not talking about the smoke. I said, state whether or not in your opinion, any of the damage could have resulted from the smoke from the Isabella furnace?

A. No, sir, I would not consider the Isabella furnaces damages us at all in that section.

Mr. DRAKE: We except to the answer, because he gives a conclusion without any facts on which to base it.

Exception overruled, appeal prayed and granted.

Q. 39. State how much further the Ducktown furnace is from you than the Tennessee furnace?

A. Something like two and a half miles, I expect.

Q. 40. Are there any ridges intervening between the Ducktown furnace and your place?

A. Yes, sir, it is ridgy country there.

Q. 41. Are there any ridges intervening between the Ducktown Company's furnace and the Tennessee Company's furnace?

A. Yes, sir.

Q. 42. Are they pretty high ridges?

A. Yes, sir, right smart little ridges.

Cross-examination.

By J. A. **Drake**, Esq.:

Q. 43. Is there any timber whatever between the Tennessee's plant and the Ducktown plant on those ridges?

A. Not very much. Not any large timber, there is some young growth.

Q. 44. Is there a single bush or tree on those hills?

A. Yes, sir.

Q. 45. On top of the hills I am speaking of?

A. I would not say positively on the very top.

Q. 46. Or anything else to obstruct the smoke from coming over into,——

828 A. No, sir, I do not know as there would be any timber to stop it.

Q. 47. You were asked about last year's smoke coming over there? I will ask you if you have observed any smoke damage in that section? In your neighborhood this year?

A. No, I have not any that has been damaged this year.

Q. 48. Have you seen any beans or gardens that were damaged?

A. I have seen some. Seen some on my Irish potatoes, maybe a few hills of beans, all I have seen.

Q. 49. I will ask you on May 13th and 14th, and May 28th, and June 8th, the smoke was not so bad in your section that you could see it and smell it, and observe the effects of it on the vegetation and fruit?

A. On the 8th of June I was not in that section of the country. I cannot say. I was not in that section at all. The other dates you mention, I would not be positive but what there was some smoke in there some time during the month of May, I think.

Q. 50. It is a substance that you can smell and see?

A. Yes, sir, sometimes you can and there are times you cannot see it.

Q. 51. And sometimes you can see it all right?

A. Yes, sometimes you can see it.

Q. 52. Do you know about the prevailing winds in that section, which way they go?

A. No, I would not know.

Q. 53. Generally speaking?

A. No, I have never paid much attention to that.

Q. 54. You know the shape of the hills in that country, which way the valleys are the longest, and which way they are the narrowest?

829 A. Well, there is a valley,—The Ducktown Sulphur & Copper Company, or the Tennessee Copper Company? The

Tennessee Copper Company's plant is on the river, and the other is back on more of the mountain country a little further.

Q. 55. What I mean, Mr. Quintrell, is this, is not that Basin, does not that Basin run southeast and northwest, and is it not about twenty to thirty miles in one direction, and only about eight or ten miles from east to west across it, between two high mountains?

A. It is something like ten or twelve miles, I would say, something like maybe fifteen, I would not say as to that; and of course the other way, I would not say, but it is longer that way than it is the other way.

Redirect examination.

By J. A. Fowler:

Q. 56. Mr. Quintrell, what kind of a season has this been in North Georgia?

A. It has been dry.

Q. 57. Would that have any effect on the potatoes?

A. Yes, sir.

Q. 58. On vegetation in general?

A. It would have a bad effect on them, yes, sir.

Q. 59. You state, Mr. Quintrell, there is not much timber near these two furnaces?

A. No, sir, not much timber.

Q. 60. What kind of growth of young timber is there between the Ducktown furnace and the Tennessee furnace, what kind?

A. Black oak, and white oak.

Q. 61. Is there very much of it?

A. A right smart little bit.

Q. 62. Does it appear to be thrifty?

830 A. It does, and not long ago, a day or two ago, looked better than it has been looking for years back.

Q. 63. State whether or not sage grass, or other kinds of grass grows through that section, that barren section?

A. That is between the two plants?

Q. 64. Yes.

A. Yes, sage grass grows there.

Q. 65. Is or not that burnt off every year, about?

A. Yes, sir.

Q. 66. What effect would that have on the growth of that other vegetation?

A. That would be owing to the season of the year, it could be burnt off in the season when it would have a bad effect on the young growth.

Q. 67. Anyway, it is burnt off?

A. Yes, sir.

Q. 68. And this young timber is coming up, notwithstanding that?

A. Yes, sir.

Q. 69. Do they have gardens right around the furnace?

A. I could not say right at the furnace, but they have them close around the furnace, in a quarter of a mile or something like that.

Mr. **Miller**: That is all.
Mr. **Drake**: That is all.

Further this deponent saith not.

Sworn to and subscribed before me this — day of —— A. D., 1914.

—— ——,
Clerk and Master.

The distance travelled by this witness was 246 miles, 123 miles in each direction, to and from his home.

831 Sherman Reese, the next witness called for the defendant herein, being first duly sworn, upon examination, deposed:

Direct examination.

By W. B. Miller, Esq.:

Q. 1. Mr. Reese, how old are you?
A. Forty-nine years old.
Q. 2. How long have you lived in what is known as Ducktown Basin, in Polk County, Tennessee?
A. All my life.
Q. 3. What was the condition of that Basin at the time the company of which Captain Raught was the manager, known as the Consolidated Company ceased operations?
A. You mean what was the condition of the timber?
Q. 4. Yes.
A. Well, all the virgin timber had been cut off, practically all of it, had been cut off during the operation of the mine.
Q. 5. When the Ducktown Company began to operate in 1901, I understand they first began the open heap roasting?
A. Yes, sir.
Q. 6. How long did that continue?
A. About ten years.
Q. 7. At the time they ceased open roasting, was there or not a stock of roasted ore ready to be used in the smelter?
A. Yes, sir.
Q. 8. How long did that last?
A. Practically all that year. That was in 1902, I think. They took up all that year to smelt the roasted ore.
Q. 9. How long did the Tennessee Company continue to use the open roasting?
A. They were in operation in 1901, I think. I think they changed the open roasting in 1904.
832 Q. 10. Are you a member of the Mayfield Commission sent out in the spring of 1901, just before the Tennessee Copper Company went into blast?
A. Yes, sir.
Q. 11. What was the object of the Mayfield Commission?
A. To investigate the extent of the smoke damage at that time.

Q. 12. To ascertain the extent of the territory affected by smoke?

A. Yes, sir.

Q. 13. How many days was the body of commissioners out on that trip?

A. Four days.

Q. 14. State whether or not you rode in and out of the Basin, at various points, with a view of locating that zone?

A. Yes, sir.

Q. 15. Where did you locate that smoke, with respect to the inside, or foot hills of the Ducktown Basin?

A. It was in the Ducktown Basin, all around, except it went in behind what is now Amburn Mountain, but practically went inside the basin.

Q. 15. What distance would you say, taking the Ducktown or Isabella plant, at the center, what distance in the various directions did that effect the zone extent, at that time, after ten years' continuous operation by the Ducktown Company?

A. The roast plants, and taking the ridges around it?

Q. 17. No, take the Ducktown plant?

Mr. Drake: We except to the question, for the reason it is incompetent and not related to the issues.

Exception overruled and appeal prayed and granted.

A. From one to two miles.

Q. 18. You would say, taking the plant as a necleus,
833 the zone extended from one to two miles on all sides?

A. Yes, sir.

Q. 19. Could you or not, you and your fellow members composing that party, readily tell the extent of that zone?

A. We could.

Q. 20. How could you tell?

A. Well, we could tell by the effect on the timber, on the inside and how far it reached out, and the leaves of the timber were in full foliage, at that season of the year, and you could very readily tell how far the smoke went out.

Q. 21. Was it in full foliage at that date?

A. Yes, sir.

Q. 32. Now, after the Tennessee Copper Company went into blasts in the spring of 1901, how was that zone affected?

A. Well, it broadened in every way possible.

Mr. Drake: We except to that question for the reason it is irrelevant and incompetent, and is not related to the issues.

Objection overruled, appeal prayed and granted.

Q. 23. Do you remember when the Tennessee Copper Company first began about what heighth its stack was when it first began to smelt?

A. Yes, sir.

Q. 24. About how high?

A. I would have to approximate that, I guess 150 feet.

Q. 25. What is the heighth of the present stack?

A. 325 feet.

Q. 26. When was the present stack put into blast?

A. In 1906.

Q. 27. What is the relative size of the present stack of the Tennessee Copper Company, as compared with that of the Ducktown Copper Company, I mean in diameter?

834 A. It is much larger.

Q. 28. State the extent of the operations of the two companies, Mr. Reese, how do they compare in size and volume?

A. Well, I think that the Tennessee Copper Company is four or five times larger than the Ducktown Copper Company.

Mr. DRAKE: We except to the answer as being a conclusion without any facts on which to base it.

Exception overruled, and appeal prayed and granted.

Q. 29. Let us see what you know about the facts, have you been to the Tennessee Copper Company's plant often?

A. Not very often. I have been in the plant though.

Q. 30. You have been in there more than once?

A. Yes, sir.

Q. 31. You have been in recently?

A. Not very recently, not for the last two or three years.

Q. 32. Have you been to the Ducktown Company's plant often?

A. Yes, sir.

Q. 33. How many furnaces have they?

A. Two, not but one in operation now, they have closed down one, but have only two furnaces.

Q. 34. They have two furnaces and one in full blast?

A. Yes, sir, they hardly ever run but one.

Q. 35. During the growing season, do they ever run but one?

A. No, sir.

Q. 36. How many furnaces does the Tennessee Copper Company operate?

A. Seven. They have seven, I understand; but I understand they run from five to six.

Mr. DRAKE: We except to that because it is hearsay.

835 Exception overruled, and appeal prayed and granted.

Q. 37. Which of them consumes the greater quantity of ore?

A. The Tennessee Copper Company.

Mr. DRAKE: We except to that for the same reason as heretofore stated, that it is a conclusion without any facts stated on which to base it.

Exception overruled, and appeal prayed and granted.

Q. 38. State whether or not the Tennessee Copper Company operated continually?

A. They do.

Q. 39. Which employs the greater number of hands?

A. The Tennessee Copper Company.

Q. 40. Do you remember when the acid plant of the Ducktown Company was installed?

A. Yes, sir.

Q. 41. When was it?

A. 1909.

Q. 42. Was it June of that year?

A. 1909, yes, sir.

Q. 43. Has it been operated continuously since?

A. Yes, sir.

Q. 44. When was the acid plant of the Tennessee Copper Company installed?

A. 1908.

Q. 45. Has it been operated much of the time since?

A. Well, I suppose they have had some break downs, I do not know just how long the duration is, they are out of commission, they have had some few break downs, I think.

Q. 46. When that plant of the Tennessee Copper Company gets out of commission, and they have a break down, what is the result?

836 A. You can see the result on the vegetation.

Q. 47. When the tall stack was put into operation in 1906, did the smoke zone increase or decrease?

A. It increased.

Q. 48. Materially?

A. Yes, sir.

Q. 49. Was that increase one of two hundred yards, or a mile or two miles, or what?

A. Well, it went two miles further away.

Q. 50. I will get you to state whether there is a chain of hills that are higher than the stack of the Ducktown Copper Company, that intervene the Ducktown's plant, and the Georgia State line?

A. There is, yes, sir.

Q. 51. It has been maintained by inference in the cross-examination of some of the Ducktown Company's witnesses, today, that fumes have been escaping from its plant, and drifting in a southeasterly direction over the Georgia territory; I will get you to state whether or not you have been over that southeasterly section lately?

A. I have, a few days ago, last week.

Q. 52. State whether or not that inference or insistance has been founded on facts, and if not, tell just what you know about that section southeast of the Ducktown Copper Company's plant?

A. And the conditions of that country?

Q. 53. Yes, how they have been in the last two or three years?

A. Well, they have been very much improved since the two acid plants have been erected, a great deal more than they were before or after that high stack was put up.

Q. 54. Was that territory out in southeast Georgia effected at all until the Tennessee Copper Company began?

837 A. No, sir, not at all; in fact, I do not think it was affected in Georgia at all.

Q. 55. Was it materially affected out through there until the small stack was put into blast?

A. Well, after the Tennessee Copper Company went into operation, I think the smoke perhaps reached into Georgia.

Mr. **Drake**: We except to the question and answer above, for the reason that they are immaterial and irrelevant.

Exception overruled, and appeal prayed and granted.

Q. 56. After the tall stack was put into operation, was that section affected extensively?

A. It went further, quite a ways further.

Q. 57. And after the two acid plants were put in, you say conditions were materially—Has the southeastern territory been effected Mr. Reese since the acid plants have been put into operation?

A. Well, they have not been effected much, but right around by the Tennessee Copper Company, and Copper Hill, last week and week before last.

Q. 58. The eighth of June?

A. A week ago, or something like that. Last Monday a week ago, or something like that, the smoke was down there in that territory, and it bit the gardens and some shade trees, and some little bit of signs as far as Epworth, due south of the Tennessee Copper Company's works.

Q. 59. Epworth, I believe is about two miles from the Copper Company?

A. Two miles.

Q. 60. Where does that smoke come from, which plant was making it?

A. I went close to the North Carolina, Tennessee and Georgia line,
where the North Carolina line corners with Georgia, Professor Bane
and myself were taking the color photographs and the
838 smoke,—and the smoke was so very thick, we turned our
course and intended to go into Georgia, but we could not
take any pictures.

Q. 61. I am asking what plant that was coming from?

A. The Tennessee Copper Company.

Mr. **Drake**: I except to the answer because it gives a conclusion and speculative.

Q. 62. Did you or not see smoke ascending from the top of that stack, and drifting in the direction of Georgia?

A. I did.

Mr. **Drake**: I object to that, because the question is leading and suggestive of the answer.

Objection overruled, appeal prayed and granted.

A. I can tell about how that was on that day, if you want me to, and just what I saw in regard to the smoke.

Q. 83. Just tell what you observed, and the conditions at the Tennessee Copper Company's plant, and where the smoke was going to from there?

A. Well, as I said, you could see sometimes, some over there on the timber, and sometimes on the garden, as far as Epworth, and we turned west, to the Mobile mine, number twenty, and there was not any smoke at all.

Q. 84. Lot number twenty?

A. Yes, sir, and number twenty *m*ine. Then, we did not see any sign of smoke until we run Rogers Ferry, on the Ocoee River, and, from there to the Tennessee line, you could see smoke from both plants, the Ducktown Copper Company's plant, and also from the Tennessee Copper Company's plant. We talked about it and noted it, and the smoke from the D. S. & I. Company's plant was, but you could not see a bit of it any further than Calloway, about a mile, or a mile and a quarter from the D. S. C. & I. plant. Then from the tall stack, it went into Georgia as far as you could see.

839 Mr. DRAKE: I did not understand how far you said it went into Georgia.

A. As far as you could see off the mountain.

Q. 85. Could you tell the drift of the smoke from the Tennessee Company's plant?

A. Yes, sir.

Q. 86. What smoke does escape from the plant of the Ducktown Company; state whether or not it is diffuse- to the extent that it is appreciable before — reaches the Tennessee Company's plant?

A. It is.

Q. 87. Does it or not have to drift through the hills before it gets to the Tennessee Company's plant?

A. Yes, sir. The hills are higher than the D. S. C. & I. Company's plant.

Q. 88. Probably how many days have you spent in the last two years around in that territory, that lies immediately south and southwestwardly from Copperhill, in Georgia?

A. Well, I could not say. Last year I spent most of the summer in that territory, that is I had to make a trip most every week from May until in October, 1912.

Q. 89. How was it in 1912?

A. Well, *it* was not in that territory a good deal in 1912.

Q. 90. Were you a member of the party that was down there in 1912, that camped on Jacks River?

A. Yes, sir.

Q. 91. Tell in a general way, the extent of your travels through there, in 1912?

A. Well, in 1912, on that camping expedition, we spent eight days, I think that was, in the month of September, and we were making an inspection of the Vestal property. Then in 1913,

840 I think we spent twenty-one days on that property, and the Casker Lumber Company's property.

Q. 92. That is the Vestal land, which was owned by H. P. Vestal and J. H. Vestal, or claimed by them?

A. Yes, sir.

Q. 93. State whether or not each of these men had a suit pending against the Ducktown Copper Company, in the United States district court, at Chattanooga, at that time?

A. Yes, sir.

Q. 94. And did or not your party inspect those lands about those years, with a view of finding the conditions?

A. Yes, sir.

Q. 95. I will get you to state whether or not any colored photographs were taken by Prof. Bane, of the University of Tennessee, of the territory of North Georgia, southwardly and southwestwardly from Copperhill?

A. We taken a great many.

Q. 96. And were or not, those photographs placed in evidence in this Vestal case?

A. Yes, sir.

Mr. DRAKE: We except to that; the evidence in that case is the best evidence.

Objection overruled, appeal prayed and granted.

Mr. MILLER: I will state for your information, and it can go into the record, after the case was tried, they were withdrawn by consent of all parties, because there was no appeal, and will be offered here, that is the reason I am proving by him.

Q. 97. You were with Prof. Bane when these colored photographs were taken?

A. Yes, sir.I have been with him on every trip.

Q. 98. I will get you to state whether or not you were perfectly familiar with the various localities, where these photographs
841 were taken?

A. I was.

Q. 99. Were you with him on all those trips down there?

A. Yes, sir.

Q. 100. Did you state to him, in each instance, where you were so he could identify the photograph for future [illegible]erence?

A. Yes, sir.

Mr. DRAKE: Except to that question, as to what he stated to the gentlemen, as being irrelevant and incompetent.

Q. 101. Since the trial of the Vestal cases, since the taking of the photograph for use in this case, has or not Prof. Bane taken other photographs when he would go down there, in company with you, for the purpose of being used in this case?

A. Yes, sir; taken forty-five last week.

Q. 102. Were you familiar with all the localities where they were taken?

A. Yes, sir.

Q. 103. Did you or not give him the various localities where the photographs were taken?

A. I did.

Q. 104. Was that done for the purpose of helping him to identify them when he came on the witness stand?

A. Yes, sir.

Q. 105. From your knowledge of the time the photographs were taken, and seeing the photographs after they were taken, I will get you to state whether or not they appear to be a perfect reproduction, or picture of the foliage?

A. They are.

Mr. **Drake**: I except to that question because this gentleman has not qualified as an expert, and he has not stated anything on which to base an opinion.

842 Q. 106. Now, if the timber is green when the photograph is taken, how does it appear in the photograph?

A. Green.

Q. 107. And if it is dead, how does it appear?

A. Dead.

Q. 108. So, if there is dead timber on that section, the photographs will reveal it?

A. Yes, sir.

Q. 109. Now, what condition did you find the timber and the crops and gardens in, when you went down through the Jacks River section, in 1912?

A. Good. Except it was a very dry season,—in 1913 it was a dry season, in 1912 it was better, more rain.

Q. 110. Did your party, while camping there on Jacks River, purchase supplies, vegetables and grain, fruits, from the farmers around there?

A. Yes, sir, grain and supplies right there in that country.

Q. 111. Well, what sort of grain, fruit and vegetables did you get?

A. Splendid.

Q. 112. And how was the territory that intervened between there and the Copperhill, coming back within say a couple of miles of Copperhill?

A. Good.

Q. 113. Did you find any damage being done by smoke down in that section anywhere?

A. Absolutely none. In 1912, was very fine fruit. It was not so good in 1913, owing to late frosts, and crops were not so good in 1913 as in 1912.

Q. 114. How close to Copperhill could you observe growing fruit and orchards in 1912?

A. As close as two miles.

843 Q. 115. And as you travel outwardly, southwardly, and *w*outhwestwardly there, did the conditions seem to get worse or better or *n*ow?

A. We got no sign of smoke in that country in 1912 or 1913.

Q. 116. Did you, from your camp, on Jacks River, travel in all directions?

A. Yes, sir.

Q. 117. Did you ride back and forth through the fields and forests?

A. Well, we did not ride through any fields, unless we did right close to the camp, passing through the fields on horseback, but practically all the time we were in the woods, timber.

Q. 118. Were you able to ride at all times through the woods?

A. No, sir, the ground was too rough, and we had to walk part of the time.

Q. 119. State if you were on the side of the mountain, and through the timber that grew on the sides of the mountain and hills that face the Tennessee Copper Company, and Ducktown Copper Company?

A. We were.

Q. 120. Have you been on those hillsides a great many times?

A. A great many times.

Q. 121. What is the condition of the timber there, now, facing the Ducktown Basin?

A. Very good, on Tumlin Creek, that runs almost due north and south, the timber is growing within three miles of the Tennessee Copper Company's plant, that is about six miles from the D. S. C. & I. Company's plant. We have colored photographs of that territory all through there.

844 Q. 122. Now, assuming that any damage was done through the North Georgia section, as Mr. Shippin, Mr. Vestal, and others have claimed there, I will get you to state what, from your experience of the territory, would show the ravages of smoke first.

A. You mean in Georgia?

Q. 123. Yes, sir.

A. Why, on the Tacoa, or Ocoa River, it would go farther than in any other direction in Georgia.

Q. 124. Why is that, would the smoke follow the water courses?

A. Yes, sir, and the valleys, and the wind blowing from the northwest, perhaps would take it in that direction further than in any other way.

Q. 125. What has been your experience as to where the volume of smoke that would be omitted from the plant of the Tennessee Copper Company, would travel, in which direction would it go, and why?

A. Well, as I just said it would go further in the southeast direction, I think, than any other way.

Q. 126. Is it or not, anyway, very close to the Ocoee River?

A. Yes, sir, right on the bank.

Q. 127. How far is it from the Ocoee River *River*—the smoke *of* the Ducktown plant omitted?

A. About three miles and a half, air line.

Q. 128. Assuming, as it has frequently been contended, that the smoke would travel down Potato Creek, and then to the Ocoee River, I will ask you how far northwestwardly from Copper Hill, Potato Creek enters into the Ocoee River, about Copper Hill?

A. It would travel four miles, or three or four, air line.

845 Q. 129. As the river runs?

A. It is about two miles.

Q. 130. And probably what would be the distance that the smoke would have to travel, if there was sufficient volume of it a minute, at Isabella, to travel down Potato Creek, and into the Ocoee River?

A. As the creek runs?

Q. 131. Yes.

A. The creek is very crooked, zig-zag down through the hills, it would be between three and four miles, as the creek runs, but not so far on the air line.

Q. 132. That, if the smoke from the Isabella plant, in fact, got into the southern territory, that lies south of Copper Hill, by way of Potato Creek, it would first drift down the creek to the Ocoee River, and then back up the river, a reverse course to get back into that southern section?

A. Yes, sir.

Q. 133. From your experience and observation, does the smoke do that?

A. No, sir.

Q. 134. Were you a member of a party that took a trip to Overton and other counties of Tennessee, to observe the death rate of timber, hundreds of miles away from the Ducktown basin?

A. Yes, sir, I was with a party, this year, 1914.

Q. 135. What counties of Tennessee were you in on that trip?

A. We were in Anderson County, Rhea County, Morgan County, Scott County, Overton County, and Putnam, Fentress County and perhaps some others that I do not recall to memory now.

Q. 136. What did you find the condition of the timber growing in that tier of counties that you have described in Tennessee, as compared with the timber down in the North Georgia section,
846 that lies south, southeastwardly and southwestwardly from Copper Hill?

Mr. **Drake**: We except to the question as being irrelevant, incompetent and a conclusion which is unwarranted.

Exception overruled, and appeal prayed and granted.

A. There is a great deal of dead timber in all of these counties, more so even than anywhere in Polk County or Fannin County, or Union, or part of North Georgia. Now, I was also in North Carolina, in several counties, and there was a great deal more dead timber in these counties, than in all the North Georgia Section.

Q. 136. Were there or not, any smelting plants or any other plants in those counties of North Carolina, or Tennessee so far as you could see or learn of, *or* that would have wrought the wholesale destruction to the timber, which you found?

A. *Is* not that I know of, except the iron furnace at Rockwood.

Mr. **Drake**: I want to except to that as being irrelevant, incompetent, and not reflecting on any issue in this case.

Q. 137. I will get you to state whether or not there have been frequent forest fires in the section of Georgia that lies immediately south of Copper Hill, to the southeast and southwest?

A. Yes, sir, a good dead of kinds of forest fires.

Q. 138. How frequent are those forest fires down there?

A. They seem to be every year.

Q. 139. How extensive are they?

A. Very extensive, and in some places, especially in the mountains.

Q. 140. What effect do they have on—those forest fires, on growing timber?

A. It kills a great deal of it, especially when it is burnt in the spring of the year.

847 Q. 141. To what extent has that country down there been milled over, the timber cut off for saw purposes?

A. Well, on the Vestal property, the most of it, that was acceptable, or had merchantable timber on it, has been cut off.

Q. 142. How many times has it been cut over?

A. Well, from one to four times.

Q. 143. What was done generally with the laps of the trees, when cut?

A. They were left on the ground until the forest fires came along and burnt them up, or partially burnt them up.

Q. 144. State whether or not there has been frequently sawmills, or sites, through that section?

A. Yes, sir.

Q. 145. What has been your experience, or observation, as to the grade of timber around the saw mills *sets*?

A. Well, it has been great. Most generally where the laps are left on the ground, fire comes in and burns up the dead timber, that is the laps, and kills a great deal of the green standing timber.

Mr. Drake: I except to that as being irrelevant, incompetent, and not illustrating any issues in this lawsuit.

Q. 146. Do you know whether or not worms or bettles are in that timber that stands near a sawmill site?

A. Yes, sir, I think worms generally follow these fires, and kill a great deal of the timber.

Mr. Drake: We except to that answer for the reason it is a conclusion, without any facts being stated on which to base it, and irrelevant also.

Exception overruled, and appeal prayed and granted.

Q. 147. Making allowance for the ravages due to forest fires
and the cutting of the timber for mill purposes so frequently
848 in that north Georgia section, I will get you to state if there
is any great death rate of timber down there in that section,
or any other section you have been in, in years?

A. I think not. In Morgan County, in fact all those counties in Tennessee, nearly all of the timber—chestnut timber is dead in some places, and in some places it has been a very heavy timber country, and in some places all the chestnut is dead, and the white pine is dying from some cause, I do not know what.

Q. 148. There have been several witnesses asked about a man named J. Y. Allen down in Georgia?

A. Yes, sir.

Q. 142. He was introduced as a witness for Shippen Brothers I believe, in their case?
A. Yes, sir.

Mr. **Drake**: We except to that question as irrelevant.
Exception overruled and appeal prayed and granted.

Q. 150. Did you see the corn crop growing on the land belonging to him when you were there, on these visits?
A. In 1912?
Q. 151. Yes.
A. Yes, sir.
Q. 152. What character of corn was growing there?
A. A good one.
Q. 153. Were you present when this man Allen was called as a witness in concluding the testimony in the Shippin Brothers case, at Athens, Tennessee, on their behalf?
A. Yes, sir, I was.

Mr. **Drake**: We object to the question as being irrelevant.
Objection overruled, and appeal prayed and granted.

849 Q. 154. Did you hear Mr. Allen there state, under his oath that he would go home with you, or meet you, and go to his house and bring away samples of corn as exhibits for the district judge to see and inspect them, and to be filed as exhibits in that case?

Mr. **Drake**: We except to that question for the reason that it is incompetent and irrelevant.

Q. 155. State if pursuant to that agreement, you visited Mr. Allen's house for the purpose of getting the samples that he promised?
A. I did.
Q. 156. What happened when you got there?
A. When I got there, the agreement between me and him was for him to see me at Blue Ridge on a certain date, I do not remember the date now. I have it in my note book. When I got off the train, he was not anywhere around to be found. I inquired for him, and someone told me that he had been there but had left. I went to his home, and his wife told me he had went to the farm, so I went to the farm, and asked him for the sample of corn and he refused to give it to me.

Mr. **Drake**: We except to that answer, as being incompetent, and irrelevant to this case.

Objection overruled, and appeal prayed and granted.
Mr. **Miller**: I can see that it is, unless Mr. Allen was introduced by the State of Georgia, and I assume that he will be.

Q. 156. Now, I will get you to state whether or not Mr. Allen tried to pick a fuss with you, after you arrived there?
A. He seemed to be mad or excited when I came up, and he

talked in an insulting way to me. I suggested to him that he give me the sample of corn. I saw that his only purpose was to pick a fuss, and there was nobody with me. There were three of them, and so they taken me in the saddle room, or cutting room, whatever you might call it, in his barn, and opened up a barrel of corn, and said, "This is the kind of corn, this is what your damned old smoke has done. This is the kind of corn I have to make my bread
850 out of." There was another barrel sitting there, as fine corn
as I ever saw, and I said, "Why do you not give this?" He said, "This is a different kind of corn." I said if the smoke did not effect it, I would plant it. I saw that we might have trouble, and I suggested for the second or third time that we get this corn out of the crib, and he finally said, "You are on the other side, and you cannot get a damned thing out of me." Well, I said, "All right," and when he went away a third party come up, and stepped around the barn, and his tenant said, "I looked for him to run you off." He said he was not going to give you the sample of corn." I said, "Well, I will leave if he is not going to give it to me," and came away to Chattanooga.

Mr. DRAKE: We except to that because it is incompetent, irrelevant, and in no way illustrates any issues in this lawsuit, and all the hearsay evidence of Allen's tenant.

Exception overruled, and appeal prayed and granted.

Q. 157. State whether or not this man Allen did not have a good corn crop?

A. He did have as fine as I saw that year anyway, in all my travel, I never saw any to equal it. My evidence in that case was that it would make from fifty to sixty bushels, and some thought it would go as high as eighty.

Q. 158. An acre?

A. An acre, yes sir.

Q. 159. During your visits in North Georgia, these frequent visits you have made, did you have any object except to ascertain fairly the conditions, and honestly report them?

A. None whatever.

Q. 160. Have you any interest in the Ducktown Copper Company as a stockholder, or otherwise?

A. No, sir.

Q. 161. What were the instructions you were given from time to time when you were sent out to learn as to the conditions,
851 by the manager?

A. To make fair and impartial reports, and honest reports.

Further deponent saith not.

—— ——.

Sworn to before me this 18th day of June, A. D. 1914.

—— ——,
Clerk and Master.

Distance travelled by this witness is 246 miles.

The hour growing late, the further taking of depositions in this cause was adjourned until 9 o'clock, a. m., Friday, June 19th, at which time, pursuant to adjournment, the further taking of depositions in this cause, was resumed at the same place, and in the presence of the same parties, as mentioned hereinabove.

852 M. T. Fouts, the next witness called on behalf of defendants herein, being first dul*t* sworn, upon direct examination deposed as follows:

Direct examination.

Questions by Mr. W. B. Miller:

Q. Mr. Fouts, how old are you?
A. I am sixty-six years old.
Q. You live at Cleveland, Tennessee?
A. Yes, sir.
Q. Have you recently been Postmaster at Cleveland, and if so, for how long?
A. I was Postmaster at Cleveland for seven months.
Q. Recently?
A, Yes, sir, I went out the first day of last July.
Q. Did you ever serve in the State Legislature of Tennessee, in either the House or the Senate?
A. Yes, sir, I served in both.
Q. You were representative from what County?
A. I was representative once from Bradley and Polk Counties, and once from Monroe and Loudon, and Senator*ial* of five counties, of McMinn, James, Bradley, Polk and Monroe.
Q. Then, you have represented in the House of Representativ at Nashville, two terms, and in the State Senate one term?
A. Yes, sir.
Q. I understand you formerly lived in Polk County?
A. In Polk County up to seven years ago.
Q. Were you a member of what was known as the Mayfield Commission, that was sent out to locate the smoke zone in the Spring of 1901, by the Ducktown Copper Company?
A. Yes, sir.
Q. You were accompanied on that trip by whom?

A. By Sherman Reese, Tom Biggs, Rollins, we called him
853 Bud Rollins, J. P. John Hall, I believe, and Edward Charl
Parks, I guess.

Q. That is Mr. George Parks who is here as a witness?
A. Yes, sir.
Q. Mr. Biggs, I believe, is dead?
A. Yes, sir.
Q. Mr. Reese is here as a witness?
A. Yes, sir.
Q. If you gentlemen went out in 1901 as members of that Com mission, did you have any other purposes or object in view excep

to correctly locate the outside or damage of the smoke zone and faithfully report the facts?

A. That was our mission.

Mr. Drake: We except to that evidence as being irrelevant and incompetent, for the reason that it does not in any way *issuls trate* the issue in this cause.

Exception overruled, appeal prayed and granted.

Q. State if you spent several days on that mission, and if you correctly located the smoke zone?

A. Yes, sir.

Q. Where was the outside of that zone, as compared with the inside of the range of mountains that form the rim of the Ducktown basin?

A. Well, the—I do not know that I exactly understand your question.

Q. How far from the Ducktown Copper Company's plant did that smoke zone extend?

A. Well, from three to four miles, further in some directions than others.

Q. Was it, or not confined to the Ducktown basin?

A. Yes, sir, principally, except a few low gaps, or two, where it extended outside of the Ducktown basin.

Q. Did it exten*t* any considerable distance?

854 A. No sir.

Q. At that time the Ducktown Copper Company had been operating some years, ten years, I believe?

A. Well, a long time, something like ten or twelve years I suppose. It started in '92 or '90, somewhere along there.

Q. Now, did you at any time go, or have you been into the North Georgia section of country that lies immediately south of Copper Hill?

A. Yes, sir.

Q. How extensively have you been over that North Georgia section?

A. Well, I have been over it some two or three times, different times, out beyond, as far out, as far as Ellijay.

Q. When were you down there last?

A. I believe it was in 1906 or 1905.

Mr. Drake: I except to *to* that evidence as it relates to the conditions prior to 1907, that being irrelevant and incompetent for the fact that it does not in any way illustrate the issues in this case.

Exception overruled; appeal prayed and granted.

Q. Have you been at Ducktown and Copperhill in recent years?

A. Yes, sir.

Q. Have you observed the sides of the mountains of the Ducktown basin when you would be in Copperhill or Ducktown?

A. Yes, sir.

Q. State whether or not you have also made a recent trip through any of the Tennessee counties, with a view of ascertaining the death rate of timber hundreds of miles away from the Ducktown basin?

A. Yes, sir.

Q. What counties of Tennessee did you visit?

A. I visited Rhea County, Morgan County, Cumberland
855 County, and Fentress County.

Q. Did you go into Putnam County?

A. Putnam? Yes sir.

Q. Did you go into Roane and Overton Counties?

A. Roane and Overton Counties, yes, sir.

Q. What did you find as to the condition of timber in these various Tennessee Counties just enumerated by you, what was the death rate there as compared to what it is on the mountains forming the rim of the Ducktown basin?

Mr. Drake: I except to this question, and except to answer, as it would be irrelevant and immaterial, and not in any way illustrating the issues in this case.

Q. What did you find, I say, Mr. Fouts, as between the two sections of country as to the death rate of timber?

A. Well, the death rate of timber outside the Ducktown basin and adjacent to the mines, from five to ten miles and further, was very much larger, a larger per cent of it dead timber than was in and around Ducktown, except in the immediate vicinity of the mines, and the basin.

Q. When you speak of the territory outside of the Ducktown mines, the basin, do you, or not, mean that tier of counties of Tennessee, consisting of Overton, Fentress, and the other Counties you named?

A. Yes, sir.

Q. Do I understand that in that tier of counties you found the death rate of timber much greater than you did around the Ducktown basin, when you got away from the territory of the mines?

A. Yes, sir.

Q. What appeared to be the cause of the heavy death rate of the timber in these various Tennessee Counties which you have named?

A. Well, we can place as to surmise what that was, accord-
856 ing to the citizens, it was the talk that it was fire, and dry
weather that caused the death rate of the timber out on the
Cumberland range.

Q. Were these Tennessee Counties that you had named located on the Cumberland Mountain, and adjacent to it?

A. Yes, sir.

Q. State whether they have all of them forests or timber lands, large tracts of timber lands?

A. Up there in Morgan County there is a very large per cent of timber, trees laying on the ground, dead, and chestnut timber dead. Never saw a green chestnut tree in that portion of the country, or next to Lansing.

Q. Do these Tennessee Counties you have named all comprise large tracts of timber land?

A. Yes, sir.

Q. Now, after you left the Ducktown Basin, and got up on the mountain forming the rim of the Ducktown basin, or after you get three, four or five miles from Isabella plain, now what was the death rate of timber as compared to what it was in these Tennessee Counties mentioned?

A. Well, the per cent is much larger, the dead timber, than it is five or six miles from Isabella.

Mr. Drake: We except to all the evidence as to the condition of timber in Cumberland, Fentress and Morgan and the other counties named, for the reason that it is irrelevant and immaterial.

Exception overruled, appeal prayed and granted.

Q. Going in any direction from the village of Isabella what is the condition of the timber after you got four or five miles away from the plant, as to death rate, as compared to what it is in these Tennessee counties that you have recently visited.

A. The dead timber in those counties visited is much larger, than it is in from four to six miles from Ducktown, that is, except through the low gaps, and down the Ocoee River.

857 Q. I understand the death rate of timber is greater when you get away from the Ducktown basin, in these outside counties than it is in the Ducktown Basin section?

A. The counties I have been in, it is, yes, sir.

Q. Now, were there any furnaces or smelting plants operated in these Tennessee Counties that you have talked about?

A. Well, there were some coke ovens, I do not know what you call them in Cumberland County, Roane County, and around Rockwood.

Q. They are not supposed to be very detrimental to timber?

A. No, the timber around Rockwood is better than away from three.

Mr. Drake: We except to that as leading, and being a conclusion without facts upon which to base it.

Q. You say you did find healthy, growing timber around the coke ovens?

A. Yes, sir, within a few hundred yards of it.

Q. Within a few hundred yards of them?

A. Yes, sir, right close to it.

Q. Were you familiar with the Ducktown section before the acid plants were built and put into operation by the two copper companies doing business there, the Tennessee and the Ducktown companies?

A. Yes, sir.

Q. You knew the conditions up in that section, before these acid plants were installed?

A. Yes, sir.

Q. Now, since the acid plants have been put into operation, state whether or not the conditions as to vegetation and crops, gardens and forestry, have improved?

A. They certainly have, very much. In 1901, there was nothing growing in and around the basin, to amount to anything, not hardly

a tree. Now, there is shade trees, gardens, and I see alfalfa
858 clover growing in one hundred yards of the Isabella Company the other day, something I never saw growing in Polk County.

Q. What have you to say as to the gardens and orchards now, in the Ducktown basin, what have you observed as to those?

A. Well, some of the gardens I know have been there for two or three years, and the finest peaches I ever saw growing in my life I saw growing in Ducktown last year; apples, I did not see any.

Q. State whether or not you have observed the North Georgia farms and farmers, those fellows that live in Fannin County near the Tennessee line, near Copperhill, growing farm and vegetable products and bringing them into Ducktown to be sold?

A. Yes, sir, they are growing vegetables, and one, Mr. Payne, had some of the finest apples I ever seen grown in the north, six or seven miles of the Isabella country.

Q. When was that?

A. Last year.

Q. You were down in that section.

A. I was not immediately on his place, but I saw the apples.

Q. Now, it is maintained in this controversy by the State of Georgia, as I understand, that the operations of the Ducktown Company, as they have been carried on since that acid plant was put up, are dealing destruction to the crops and the timber in the North Georgia section.

Mr. Drake: I object to that as being argumentative and suggestive.

Q. State, Mr. Fouts, from your personal knowledge, that is correct?

A. I think it is.

Q. You think the crops down there are dying as the result of the——

A. (Interrupting.) How is that question?
859 (Question read.)

A. No, sir, I want to correct my answer. I did not understand the question.

Q. State whether or not such is the case?

A. As far as my observation is concerned, it is not.

Q. If the operation of the Ducktown Copper Company would affect vegetation and the forests down in North Georgia from your experience and observation, what signs would there be before you reached the North Georgia country, and how would it affect vegetation and trees on the hills that intervene between Isabella and the Georgia line?

A. Well, I take it that the closer in, the more destructive it would be to it. Damage would be larger and less in proportion to the distance away, the way I observe that smoke trouble.

Q. That has been the result of your experience?

A. Yes, sir.

Cross-examination.

Questions by J. A. DRAKE:

Q. How long have you been away from Ducktown, living away from there?

A. Well, I have never lived in the basin. I lived in the County, but never did live in the Ducktown basin.

Q. How far was the nearest you ever lived to the Copper Companies?

A. Twenty-five miles down the river.

Q. How much, and at what times have you been employed by these Copper Companies?

A. I was employed in 1901, and have been with them at different times since.

Q. Well, are you not still in the employ of these Companies, and haven't you been this year?

860 A. Well, I have never been in the employ of the Companies except as an inspector, and I was making inspection of the extent of the smoke injury, that is the only way I have been employed by them.

Q. You have been employed in that capacity for, as I understand you, then, from 1901?

A. Yes, sir.

Q. Are you a botanist or a chemist, or in any manner an expert?

A. I do not profess to be.

Q. As to the causes of fumes, on this question?

A. I do not confess to be, sir, at all.

Q. How far away is Fentress County, and Cumberland County, and the tier of counties that you say you visited, these counties you have just named in your original examination, from Ducktown?

A. Oh, I suppose in the neighborhood of one hundred and twenty-five or one hundred and fifty miles.

Q. Why did you go one hundred and twenty-five or one hundred and fifty miles away to inspect forests down in that Section of Tennessee for the purpose of comparison? Could not you have found a great deal of forest that was removed from that smoke affected territory without going one hundred and fifty miles?

A. I think we could.

Q. Didn't you and couldn't you have passed through thousands of acres of fine and good forests before you reached Fentress and Cumberland Counties?

A. Yes, sir.

Q. Countries that were not affected by anything, were they not?

A. Yes, sir, timber was more or less affected in every county we went through, but the affection was worse in the counties mentioned than it was there near the mines.

Q. You did not stop to inspect all of the counties between Ducktown and Fentress County, did you?

861 A. No, sir, I did not stop in those counties.

Q. Didn't you go on the railroad, and make a bee line for these counties named, away down here at the edge of middle Tennessee?

A. We began the inspection over in Rhea County.

Q. Please answer my question.

A. That is, yes, sir, we went direct to them counties.

Q. Then you did not stop and inspect the counties you went through?

A. No, we did not stop and inspect the counties through which we went on that trip.

Q. Now, will you please answer me why you went to these counties in Middle Tennessee and made your first stop?

A. Well, I do not know what the special reason was, except to get clear away from the influence of the Ducktown sulphur fumes.

Q. Don't you know that you were sent down there, and your party, because, for some local reason down there, timber had been killed, and your people had been advised of it, and you went there to find the worst section of dead timber you could here in all the State of Tennessee?

A. No, I do not know that.

Q. Did you have to go one hundred and fifty miles to get out from under the influence of the Ducktown Copper Company's smoke?

A. No, sir.

Q. Didn't you just state that was the reason you went over there one hundred and fifty miles away?

A. Well, that was the reason we went over there, for comparison, by way of comparison to know the damage to timber entirely away from the Ducktown smoke, where there was no chance of the Ducktown smoke.

862 Q. Didn't I just ask you if you did have to go that far to get away from it, and didn't you state you did not?

A. We did not.

Q. Then, why did your party go one hundred and fifty miles, when you could have gotten outside of the influence of it, inside of fifty miles?

A. I do not know why we went over there except what I have just stated.

Q. Then, you do not know why you went?

A. I know we went over there for examination, which we did.

Q. Were you not sent over there?

A. Yes, sir, we were.

Q. By the Ducktown Copper Company.

A. Yes, sir.

Q. And they told you where to go?

A. No, sir, they did not tell me where to go.

Q. Did they tell any of the party that you were to go there?

A. I do not know. I joined the party, and Mr. Sherman Reese was our leader.

Q. He is an employee of the Company, is he not?

A. Yes, sir.

Q. You speak of conditions that obtained over there in North Georgia. How long has it been since you went through the North Georgia Section?

A. Well, I have not made an inspection through the North Georgia section, possibly, since 1906.

Q. You have not inspected that country, then, since the acid plants were put up?

A. No, sir, not very far.

Q. You do not know, then, anything about the conditions that are over there now, except what the folks have told you, do
863 you?

A. Well, I——

Q. Answer my question?

A. I do not know anything, only I have been out some six or seven miles South of Ducktown last August.

Q. Read the question again, please.

(Question read.)

A. Yes, sir, I know the conditions some six or seven miles. Last August I was out there.

Q. Did you make an inspection out there last August?

Q. Well, sir, I went out there to look through and notice the comparison, and noticed the timber. I was talking about it.

Q. Who sent you out there last August?

A. I was not sent over there by the Company last August.

Q. Why did you go over there?

A. I went over there with some other parties. We were over there to attend a road meeting.

Q. Then, you just went down to caucus the big road over there, and to what point?

A. Let's see—what is the name of that place, it is a little village of a place over there. I don't remember, it is some four to six miles south of Copperhill.

Q. How long were you over there?

A. We were over there one day.

Q. Well, cannot you remember the place you went to in North Georgia, if you are well acquainted in that country as you say you are.

A. I forget what they call it; it is right close to Phillips' place, out there. At Pierceville.

Q. Now, is not the truth of the business that you are not
864 well enough acquainted in North Georgia to know the names
of the points over there in that section, are you?

A. Well, I do not know the names of all of them, no.

Q. You did not get out of your buggy, or off of your horse, or away from them, to go out through the orchards and gardens and see what kind of smoke damage was done over there last August, did you?

A. No, sir, I went along noticing the timber and conditions generally, as I went down through that country before.

Q. That is all you know of it, as I understand, since 1906?

A. All the time I have been out in that country since 1906.

Q. As I understand you, then, when you say that conditions are much improved since the acid plants were put in, is that the local conditions around Ducktown and where you saw these peaches, that is the condition you speak of as being so greatly improved?

A. Yes, sir, of course that is the portion I have been in. I have been in town two or three times recently, and find the conditions and the different stuff growing and doing fine there, where there was nothing of the kind in 1901.

Q. In 1901, those old open roasting chambers were being used?

A. Yes, sir.

Q. And they killed everything in the locality there or community there, didn't they, practically?

A. Everything was killed down in the basin, yes, sir.

Q. And since the chambers have been put in, and they have changed their methods of roasting ores and handling the smoke, since 1906, you have not been ten to fifteen or twenty miles 865 down into the State of Georgia and seen the conditions, have you?

A. I have not, sir.

Q. You were a witness several times before in these Ducktown cases for these companies, have you not been?

A. Well, yes sir, I have been.

Q. How many times have you been a witness?

A. Oh, I do not remember how many times.

Q. Well, are you not a witness every time they have any trouble?

A. No, I have not been a witness *only* in all their lawsuits. I have not been called on in all their lawsuits.

Q. Have you been a witness twice?

A. I guess so.

Q. Haven't you been a witness in all the big suits, the more i*n*port*n*ant suits that they have had?

A. Well, I do not know. I have been in several, however, in the course of their suits, but not in all of them.

Q. I will ask you if you made an affidavit in the original case in this cause here? In 1906 or 1907, along there, did you make an affidavit for the company as to conditions that obtained along about 1905, or 1906?

A. Yes, sir.

Q. Now, in that affidavit, I have just asked you about, didn't you state that the conditions then were as good and greatly improved since the old roas-ing had been done away with, and that there was no damage being done in North Georgia?

A. Well, I do not know, I guess very likely I did. That was my opinion of the matter.

Q. And that there was no damage being done at that time, in 1905 and 1906?

A. No, sir, not at that time.

Q. And you do not think there has been any damage done there since 1906, or before that—1901, I mean?

866 A. Not out from the mines, not out from the copper mines, from the mines south of the mines.

Q. I draw the conclusion from your statement that you mean to say, then, that this smoke in that section, in that North Georgia counry, is a benefit to the timber isn't it?

A. No, sir, I have not said so. I do not think it is.

Q. You do not mean then, by saying that the timber is worse in Fentress County, and that the conditions are worse over there, you do not mean by that statement that the smoke benefits this country up here?

A. No, I do not mean that.

Q. I believe you state that you did not think that since 1901 the smoke damaged that country after it got three or four miles out?

A. No, sir, after it got three or four miles, from the works at Copperhill.

Q. Since 1901. You were a witness in the Shippin Bros. case against the Ducktown Company, were you not, in the Federal Court?

A. No, sir.

Q. Is there another M. P. Fouts up in that country?

A. Not that I know of.

Q. I think you do not understand the case. It was Shippen Bros. Company against this Copper Company, and the evidence was taken at Athens, or in Chattanooga, in the Commissioner's Court. Don't you remember being a witness in that case?

A. At Athens?

Q. Or Chattanooga, -here the evidence was taken before a Commissioner?

A. I do not remember of being a witness in the Shippen Bros. Case. I do not remember that style of case.

Q. I wish you would look at this evidence, to refresh your recollection, and state if you did not swear about those things in 867 that case right there (passing record to witness, and indicating on record).

A. (After examining record:) Yes, this is my evidence, and I did not understand it to be the Shippen case.

Q. I thought you probably did not remember. There are so many of them. Didn't you swear in that case that you found dead timber that you thought was killed by smoke as far as fifteen miles away from those plants?

A. I do not think I did, sir.

Q. Was not this question asked you (reading): "You have seen dead timber down the Tococoa River." "Yes"——

A. Yes, sir, I understood you to mean——

Q. And did you not answer this (reading): "Yes, sir some fifteen miles or more that I thought the smoke killed."

A. Yes, sir, I did, but I thought you said in North Georgia. I said a few minutes ago down the Ocoee River smoke went very much further. Yes, sir, I said that.

Q. You could not know how far it went down in Georgia, as you have not been down there over about four or five miles, could you?

A. Well, I have been in Georgia several times, down around Ellijay and through that country, but I never found the extent of timber being killed in that locality, nothing like it was down the Ocoee River.

Q. Not since 1906, as you have just awhile ago stated?

A. Not except that trip last August, I was out some four or five miles.

Redirect examination.

Questions by W. B. MILLER:

Q. This Mr. W. H. Shippen, who was at the head of the Shippen Bros. Company, is here and assisting to coach counsel for the State of Georgia?

A. How is that question?

868 Q. Mr. W. H. Shippen, of the Shippen Bros. Lumber Company is here today assisting counsel for the State of Georgia?

A. I do not know Mr. Shippen.

Q. You do not know the gentlemen sitting over there by the counsel?

Mr. DRAKE: We will admit, and you can put it in the record that he is here, and that he is a citizen of Georgia.

Q. Now, you say you gave your deposition in the Shippen Bros. case, where Mr. Shippen was examined; has he ever explained to the satisfaction of you or anybody else why it is that he does not want the Tennessee Copper Company to run, and wants to close the Ducktown Company?

Mr. DRAKE: We except to that as being irrelevant and incompetent, and could by no purpose be competent in this cause.

Exception overruled; appeal prayed and granted.

Q. Can you conceive why the citizens of Georgia want the large companies, right on the State line to operate, and want to close the little one a few miles further away up in Tennessee?

Mr. DRAKE: We object to the question as incompetent and irrelevant.

Exception overruled; appeal prayed and granted.

A. I could in a way.

Q. What explanation have you got about that?

A. The information I had while I was in Ellijay was that if the mines were to be shut down, they could run their works at seventy-five cents a day, and they could not do it while the mines were running.

Mr. DRAKE: I except to that question and answer as being incompetent, irrelevant and immaterial, and put in for no other purpose evidently than to burden the record, and because of hearsay.

Mr. MILLER: Thank you.

869 Exception overruled; appeal prayed and granted.

Q. You say your connection with either of the Companies has been solely that of an inspector?

A. Solely. I never was employed by the Company for any other business.

Q. Although you are not a botanist, I will get you to state whether or not you know dead timber whenever you see it?

A. I think I know dead timber whenever I see it, yes, sir.

Q. Have you not, since 1906, often been in Ducktown basin?

A. Yes, sir, I have been there, every once in a while I am up there.

Q. Were you, before the year 1906, and from 1901, up to 1906, frequently in the basin?

A. Yes, sir.

Recross-examination.

Questions by J. A. DRAKE:

Q. You have stated, Mr. Fouts, that you have heard and believed some reasons, and I will ask you if it is not a fact that the Tennessee Copper Company has entered into an agreement with the State of Georgia and has been trying to control and abate that nuisance up there, while the Ducktown Copper Company would not do anything, and has never treated the State of Georgia with any consideration whatever.

A. No, sir, not that I know of.

Q. Don't you know that as well as what you have stated about Mr. Shippen awhile ago, and a whole lot better?

A. I have learned that the Tennessee Copper Company made terms with the Georgia authorities, but I do not know that they have.

Redirect examination.

Questions by W. B. MILLER:

870 Q. In other words, that Company has met the requirements of the legislative resolution to pay two thousand dollars annually to Commissioners named by the Governor, and to dispense among the citizens of North Georgia?

A. I know nothing at all as to that except what I heard.

Mr. DRAKE: I except to that, as the contract will be the best evidence of what the trade with the State of Georgia is, and that is a document in this law-suit.

Further this deponent saith not.

Sworn to before me. — day of June, 1914.

—— ——.

The total distance covered by this witness from his home to the place of giving deposition was sixty miles, thirty miles in each direction.

871 R. T. HAMPTON, the next witness sworn for defendant, being first duly sworn upon direct examination deposed as follows:

Direct examination.

Questions by A. FOWLER:

Q. What is your age, Mr. Hampton?
A. Forty-four or soon will be.
Q. Where do you live?
A. I live at Mineral Bluff.
Q. Is that in Georgia?
A. Yes, sir.
Q. About how far from the Georgia line?
A. From the Georgia and Tennessee line?
Q. Yes, sir.
Q. Something like six miles.
Q. How far is that from the Tennessee Copper Company's plant?
A. The S. C. I. Company's plant?
Q. Yes, sir, from the Tennessee Company's plant?
A. About ten miles.
Q. And how far from the Ducktown Copper Company plant?
A. About the same distance.
Q. About the same distance?
A. About the same distance.
Q. What direction is Mineral Bluff from these plants?
A. It is a little south of east.
Q. How long have you been living there?
A. I have been living there about ten years.
Q. What do you do there?
A. I am a merchant.
Q. Do you farm any at all?
A. Yes, sir, I have some farm.
Q. Were you raised on a farm?
A. Yes, sir, raised on a farm.

872 Q. State whether or not — know about the time these acid plants were put into the furnaces?

A. I don't know just exactly the date that the acid plants were put in the Tennessee Copper Company's plant, installed in their plant, but it was in 1907, or 1908, I believe in 1908.

Q. In the Ducktown Company?
A. Yes, sir.
Q. And was the other a little bit later, or not?
A. No, a little bit earlier.
Q. Are you sure as to the exact date?
A. No, I think it was not very much earlier, all about the same time.
Q. Are you sure about the year it was done?
A. No, sir.
Q. Do you know when that high stack was constructed on the Tennessee Company furnace?
A. I do not know the exact year, it was somewhere in 1906.

Q. Do you remember when it was done?

A. I think,—yes, sir.

Q. State whether or not the vegetation and timber in that section of the country was injured after the construction of that high sack?

A. The worst injury we had there, was for about two or three years after the plant was constructed.

Q. What do you mean by the "plant"?

A. The stack.

Q. The stack was constructed?

A. Yes, sir.

Q. How was it previous to that?

A. I do not remember much previous about that, it was not near so bad as it was afterwards, along in 1906, 1907, and 1908.

873 Q. Describe what effect the smoke had on vegetation in your section of the country after the high stack was constructed?

A. There would be times the smoke would come over and be so strong it would make you cough (coughing) and make you hack, that way, and after the smoke cleared away, you would see the little leaves on the vegetables and timber turning brown, and the tender twigs and young vegetation would parch up like a fire had been run over it and scorched it a little.

Q. Did it kill any of the timber?

A. It killed the leaves on it. I suppose it was the cause of a good deal of the timber dying. I don't know what it was.

Q. Did it have any bad effect on the corn and other crops of different kinds?

A. I could not tell you what effect it had on the corn, you could not see it on the corn so soon.

Q. Ho- was it with reference to garden vegetables?

A. It was hard on tomatoes, potatoes and peas.

Q. Now, Mr. Hampton, you say you remember when, or about when, these acid plants were put in: I wish you would state what has been the effect on vegetation during the present year?

A. I have not saw any effect on it. I cannot see any at all.

Q. Was there any effect on the leaves and trees?

A. No.

Q. Or any garden vegetation, anything of that kind?

A. It has been very dry there this summer, and the Irish potatoes are not good.

Q. Is that on account of the drouth?

A. I think so, I have not noticed any smoke over there this year.

Q. How was it during last year, the whole of the year 1913?

874 A. I could not say it damaged anything at all.

Q. Did you notice any damage to timber, or any vegetation of any kind in your section last year?

A. No.

Q. How was it the year before that?

A. I did not see any at that time.

Q. Have you seen any arising from smoke in your section since these acid plants were installed?

A. No, I have not seen any there, any damage there. I will go back and state, if you will allow me.

Mr. FOWLER: Go ahead.

A. In 1906, 1907 and 1908, in July, the leaves on the timber would turn brown just like there was quite a frost, after the smoke would come over, and they would get brown. They would turn brown, and a great many trees would have the leaves *yet* off by the first of September, the leaves had been killed, but since those plants were built, you do not see that now.

Q. That is those acid plants?

A. Since those acid plants were built you do not see that effect. They stay green up until frost.

Q. Until the frost kills them?

A. Yes, sir.

Q. Have you had cultivated any corn, or land near you?

A. Yes, sir, I have four acres cultivated every year for about six years.

Q. What kind of corn do you make?

A. A good crop.

Q. How much per acre?

A. About fifty bushels to the acre.

Q. Have you noticed any injury to the crop of corn?

A. No, sir, I never saw any that I could tell.

Q. Do you notice any dead leaves at all on the trees any more than anywhere else, forty or fifty miles away?

875 A. No, sir, I do not notice any more dead leaves on the trees than appear on the trees fifty miles away. Of course you will see in the forests some dead leaves, and twigs. I have never been in the forest before in my life, even before the plant was put up but what I saw some dead leaves and twigs.

Q. Since those plants have been in operation, have you noticed any extraordinary number of dead leaves in the forest?

A. No, sir.

Q. State whether or not you have traveled through a good part of Fannin County, Georgia, during the last few years?

A. I have traveled pretty near all over it.

Q. Why?

A. I do business in the County, and a great many men I have to see, I ride around over the county to see different parties.

Q. Making those trips through the County, have you observed more or less the vegetation that is grown?

A. Yes, sir, I always do.

Q. During what seasons of the year do you pass through the County?

A. Not any particular season, one time more than another. I will say from the first of May on up until the last of September, that is the better season, the weather is nicer and the men travel more, of course: in the cold season I do not travel much.

Q. Since these acid plants have been installed in the two furnaces, have you noticed any bad effect on vegetation in Fannin County?

A. No, I could not say it was from the plant that I saw.

Q. In places which were formerly bare, state whether or not there are young trees growing there now, and shrubbery coming up?

A. Yes, sir.

876 *A. Yes, sir.*

Cross-examination.

Questions by J. A. **Drake**:

Q. How old are you?

A. I will soon be forty-four; I believe I gave *n*y age as forty-four.

Q. I did not understand it. How long have you been a merchant over in that County?

A. Well, about ten or tw*le*ve years. Ten years.

Q. Were you employed to travel around over the County for the last two years?

A. No, sir, not by any corporation.

Q. You have not been employed by these Copper Companies to travel around and look for smoke damage?

A. No, sir, all the traveling I do is for my own business, collecting principally.

Q. You are a merchant. Don't that confine you pretty close to the store?

A. No, for I have business, I keep a man hired and I have as much business on the outside of the store as I do inside.

Q. And in all these years, since these acid plants were put up, you have never been able to smell smoke, or see that smoke, or see the effect of it over there in your County?

A. I do not think I said I have not been able to smell smoke, but I said I had not seen any effect that I could say that it was the smoke over there in the country since the acid plants were installed.

Q. Have you smelled smoke over there since these acid plants were put up?

A. Yes, sir.

Q. When was that?

A. Well, I could not say, different times.

877 & 878 Q. When was the last time you smelled any of it?

Q. If I smelled it this year, I do not know. I think probably the last smoke I smelled was in February, probably.

Q. I will ask you if you were at home on June 8th, that was about last Monday a week ago?

A. Yes.

Q. Didn't you smell and see smoke in your community that day?

A. I do not think I did.

Q. Here is Isabella (indicating on map). You live away back down here?

A. This is Potato Creek. I live right here at Mineral Bluff, you see.

Q. You are right, I was wrong at that time.

A. Here is Potato Creek.

Q. Well, I was right, Mineral Bluff would be about where my hand is here, back down here?

A. Yes, this is about half way.

Q. Here is Epworth here, it is over in Fannin County?

A. This river after it comes across in Fannin County, makes a bend and runs back nearly north. I live over back here.

Q. Then, there is a big lot of hills between you and the Isabella plant?

A. There is one high ridge.

Q. One high ridge?

A. Yes, sir.

Q. And the river makes a bend through here, and if there was a big lot of smoke down that river, and back of that hill, it could not get across to you on the 8th of June?

A. Yes.

Q. If there has been any damage in that country in the last five or six years, as I understand you, you have not been able to see it?

A. Four or five years I have not seen it. I could not
879 say it was smoke, understand me.

Q. You won't say there was no damage done in North Georgia, will you?

A. No, I would not say that, but I do say I could distinguish it and know it was smoke damage. I would not say it was, or was not.

Q. Have you been on Platt Creek, east of Blue Ridge, and investigated the timber and vegetation there during the growing season in the last two years?

A. No, I have not been on the south side of Tococoa River and seen it.

Q. Have you been up to Dyal or Rocky Face Mountain facing back toward Ducktown and seen the smoke there in the last two or three years?

A. No.

Q. Have you been on the mountain, just here about immediately above Blue Ridge to observe the condition of vegetation there in the last two or three years?

A. I have not been on the Mountain, I have been on Blue Ridge, and rode out to Morgantown, I have not been in the woods. I have been on the public road mostly.

Q. I will ask you, Mr. Hampton, if it is not a fact that the smoke affects the timber worse in the top of the ridges and on the sides of the ridges that face towards the smoke stacks?

A. Certainly; when I find the effect, I find that it has affected it worse on the side facing the smoke.

Q. Have you not seen the smoke in that country, in Fannin County, this year?

A. I have seen smoke or something that looked like smoke, and I distinctly smelled the fumes in February, but I do not remember whether I smelled it since that time or not, but I did sometime back in the early part of the Spring.

880 Q. Have not the winds been from the northwest, blowing into the southeast, and over Georgia from the direction of these plants more this spring than most any year?

A. No. In fact, we have not had much wind up there, that is, this Spring, six weeks we had a drouth, and scarcely had any wind.

Q. The breeze, has not the breeze been from the northwest more than usual?

A. Yes, we had a lot more wind out of the north than usual, especially back in the Spring.

Q. Have not you seen more smoke coming from that country over the hills, than you have seen in years, this Spring?

A. No, sir.

Q. Have you been a witness before in these cases?

A. No, sir.

Redirect examination.

Questions by J. A. Fowler:

Q. Mr. Hampton, he asked you if you smelled smoke, if you saw smoke, have you not smelled smoke since you have been in Chattanooga?

A. I cannot say whether I have or not.

Q. Is it anything unusual to smell smoke around any kind of a factory?

A. No, sir.

Q. Since these acid plants have been operating, is there anything in the smoke which makes you cough like it used to?

A. No, sir, there is nothing.

Q. There is one matter I forgot to ask you about. State whether or not you were asked to put in any claim with reference to damages to your crop?

A. Yes, sir, when those men were adjusting the damages.

Mr. Drake: We except to that as being irrelevant, incompetent and in no way illustrating the issues in this case. 881

Exception overruled, appeal taken.

Mr. Fowler: Go ahead.

Witness: Shall I answer the question.

Mr. Fowler: Yes.

A. I was asked to put in a claim as I had accepted one of the blanks. I looked over my corn and looked over the blank and laid it aside, returned the blank to them. I did not want to put in any claim.

Mr. Drake: We except, for the same reasons.

Exception overruled, appeal taken.

Q. What year was that?

A. That was in 1903.

Recross-examination.

Questions by J. A. DRAKE:

Q. That smoke does not smell like any ordinary wood smoke, or coal smoke, does it?

A. No, sir, it does not smell like coal smoke. It smells like sulphur smoke.

Q. It has a peculiar, sulphur smell?

A. When it gets strong.

Q. I will ask you whether or not that is what you meant when you said you had smelled smoke in the last year or two, like you smelled sulphur.

A. Yes, I smelled sulphur. I have seen smoke when I could not smell.

Q. Smelled it when you could not see it, and saw it when you could not smell it?

A. Yes, sir.

Mr. FOWLER: Of course, there was no vegetation growing in February.

A. No, sir.

882 Further deponent saith not.

Sworn to before me, this — day of June, 1914.

—— ——.

The total distance covered by this witness from his home to the place of giving deposition was — miles, each direction.

883 W. T. S. DICKEY, the next witness, being first duly sworn, upon examination deposed as follows:

Direct examination.

By J. A. FOWLER, Esq.:

Q. 1. Where do you live?

A. I live at Mineral Bluff, Georgia?

Q. 2. The same place where Mr. Hampton lives?

A. Yes, sir.

Q. 3. What is your age?

A. Fifty-one.

Q. 4. What is your business?

A. Well, I have a small farm, and general contractor, one thing and another of that kind, and I own a farm, orchard land.

Q. 5. You were raised in and around Mineral Bluff?

A. Raised right in Mineral Bluff.

Q. 6. You have been there ever since the Tennessee Copper Company's plant was constructed, and the Ducktown plant also?

A. Yes sir.

Q. 7. Now, Mr. Dickey, do you remember about when that high stack was built at the Tennessee Copper Company's plant?

A. I do not.

Q. 8. Do you remember of its being built?

A. Yes, sir.

Q. 9. But you do not remember the exact year?

A. No, sir, I do not remember that.

Q. 10. Previous to the construction of that high stack was there any damage to the vegetation and crops up in that section of the country from smoke?

A. It was back about how many years?

Q. 11. Well, before 1906?

A. Before 1906, really I could not remember back that far, if the smoke was very bad.

884 Q. 12. After the construction of the stack, was the damage very much?

A. The damage to vegetation, I don't know so well about when the stack was put up, but until they put up the acid plant there was a great deal damage from smoke.

Q. 13. Describe the nature of the damage?

A. Our timber, commencing with the foliage, it would be burnt along on the side of the mountain, and then it would get onto the vegetation and crops, more or less. You see the foliage on the timber on the side of the mountain would show it first, you see that all along on the timber.

Q. 14. What effect would it have on the leaves?

A. It would turn them brown and they would look like they had frost on them.

Q. 15. Would they fall off?

A. I suppose so. I never noticed so much, but it looks to me like they would fall.

Q. 16. Did any timber die from the effects of the smoke?

A. Yes, sir, I guess it did.

Q. 17. What was the effect on the crops?

A. On the crops at the time the smoke was doing the most damage?

Q. 18. Yes, during that time?

A. I do not know just how it would affect the crops, but it would injure the vegetation.

Q. 19. Would it have the same effect on the leaves, particularly the growing crops as it would have on the forests?

A. Yes, it would kinder scorch them.

Q. 20. Could you smell the smoke?

A. Yes, yes.

Q. 21. What was the character of the odor?

A. Well, it smelled like that sulphuric acid plant, over there at the furnace, you know how it is there at the mines, it smells pretty strong sometimes around there.

Q. 22. Would it cause one to cough.

885 A. Not much, no sir, not that much. No, you could smell it though very perceptibly at that time.

Q. 23. You could tell the acid in the smoke by the smell?

A. Yes.

Q. 24. Mr. Dickey, you know the effects that it has?

A. Yes, sir.

Q. 25. You know the fact that those acid plants were installed in those furnaces?

A. Yes, sir.

Q. 26. Do you remember the years?

A. No, sir, I do not know that I do.

Q. 27. I wish you would describe what effect, if any, the smoke has on vegetation up in there, since these acid plants were installed and put into operation?

A. For the last two or three years, up there, according to my best observation of them questions up there, I cannot see that the Tennessee Copper Company, or other folks from anywhere down there is doing damage to vegetation around where I live, and I have observed this for the last three or four years.

Q. 28. Through what territory do you observe that?

A. Particularly over the ridge, up toward Murphy, by Granger and down the road to Atlanta, and down this way to Ducktown.

Q. 29. Have you been over a good part of the county?

A. No, not so much, I do not travel over the country so much, just occasionally on little short trips but my business does not call me out over the country.

Q. 30. Have you noticed any damage at all during this present season?

A. No, sir, I have not seen the leaves scorched in our country during the present summer.

Q. 31. During the present season has there been any smoke from these furnaces up in that section?

A. I think so, yes, sir.

886 Q. 32. Did you notice any last Monday a week ago?

A. I think I did. I do not remember the date. But it has been a week or ten days ago, something like that.

Q. 33. Was there enough of it to be unpleasant to you?

A. No, sir.

Q. 34. Did you notice any bad effects on the vegetation?

A. No, sir.

Q. 35. How about last year, did you notice any bad effects on the vegetation during any part of last year?

A. No, sir.

Q. 36. Was there any bad effects observable during year before last, that is, 1912?

A. Not that I remember.

Q. 37. Have you noticed much damage since the plants have been installed, the acid plants I refer to?

A. I could not say that I have, that I have noticed damage for the last three or four years. I do not remember particularly about those things.

Q. 38. State whether or not you have seen rye growing in your neighborhood during the present season?

A. Yes, sir, I have seen some rye growing in my neighborhood, noticed it two or three days ago.

Q. 39. What kind of a crop was it?

A. According to the land, it was the best I ever saw. The land is thin, and I thought it was the finest, and everybody as well, has remarked about it, and it is out in the edge of town.

Q. 40. Do you know whether or not rye is tender and susceptible to the acid poison?

A. I think it is. I think it is susceptible to poison at the time the blooms are on it. It used to be counted very detrimental.

Q. 41. You live south of east from these furnaces?

887 A. Yes, sir, a little bit.

Q. 42. Abd does the west—Do you have the west or northwest winds?

A. Yes, sir.

Q. 42. Did you see that corn crop of Mr. Eddington's?

A. No, sir, I did not see the corn crop growing. I saw him shipping off some samples. I know what he grew. I know he took the State premium and also the County premium for the most corn grown on an acre in Georgia.

Mr. Drake: We except to the answer as being irrelevant and immaterial and especially as to the taking of premiums, etc.

Exception overruled; appeal taken.

Q. 44. Do you know where this man lives, that raised that prize corn?

A. Yes, sir.

Q. 45. How far from where you live?

A. Four or five miles east.

Q. 46. Further east?

A. Southeast.

Q. 47. Then he is four or five miles further away from the furnaces than you?

A. Yes, sir.

Q. 48. State whether or not during the time—State whether or not before these acid plants were installed injury was done to vegetation around where you was, or beyond that?

A. I have been told that it extended in Union County at one time.

Q. 49. How far away was it injured then?

A. I have seen it up in Union County, that looked to me like it had been affected by smoke, according to my best observation, I was up there and it looked like to me that it had been affected by smoke according to my best observation at that time. 888

Cross-examination.

By J. A. Drake, Esq.

Q. 1. This fellow, John Eddington, is the one that had the fine corn crop you spoke of?

A. No, sir, that was not his name.

Q. 2. What was his name?

A. I do not remember.

Q. 3. Where does he live?

A. He lives up near Morgantown, four or five miles east of Mineral Bluff, his farm is near Morgan.

Q. 4. That is four miles further away from the plant than where you live?

A. Yes, sir.

Q. 5. You live about ten miles I believe?

A. Yes, sir, nine or ten.

Q. 6. Then this fellow Eddington live- across beyond some more hills, does he not?

A. Yes, sir, hills all through there.

Q. 7. Is that in Union *on* Fannin County?

A. Fannin County.

Q. 8. Is that up near the edge of the County?

A. No, Mineral Bluff is about the center, and Morgantown is about four miles east.

Q. 9. As I understand you then, you have traveled over the County of Fannin very extensively?

A. No, sir.

Q. 10. You have just made a *g*ew trips up and down some big roads?

A. Yes, sir.

Q. 11. Leading toward Murphy, North Carolina?

A. Yes, sir.

889 Q. 12. That is going away from the plants, and down to Blue Ridge?

A. Yes, sir, Blue Ridge, and up to Ducktown.

Q. 13. And if there has been any other damage in other parts of the County you do not know about that?

A. No, I could not say about that.

Q. 14. Have you been on Flat Creek? East of Ellijay,—Blue Ridge and through that country, the last two years?

A. No, sir, I have not been there the last four or five years.

Q. 15. You have not been there for the last four or five years?

A. No, sir.

Q. 16. You have not made any investigation of those mountains and hills through there?

A. No sir.

Q. 17. Have you been on the hills above and around Blue Ridge to see the effects of smoke on trees and forest trees in the last few years?

A. Only in the town, what I can see from the Town of Blue Ridge.

Q. 18. Would you swear, Mr. Dickey, that there has been no vegetation or timber killed in and around Mineral Bluff in the last four or five years?

A. I will swear I have not noticed any.

Q. 19. You will not swear there has not been?

A. I will swear I have not noticed any.

Q. 20. Have you seen or smelt smoke in that neighborhood this spring?

A. I have seen smoke there, I do not remember that I have detected any odor there, there has been some smoke up there.

Q. 21. I will ask you if it has not been so bad, all back toward Blue Ridge and in the Flat Creek country toward you, and 890 around Mineral Bluff, so bad that the citizens have been holding public meetings and discussing ways and means of getting rid of it—has not that occurred this year?

A. No, not that I know of, I have not heard of it.

Q. 22. How many times this year have you seen smoke down in that neighborhood?

A. I have not noticed the smoke there that I thought was smoke from the mines, but once or twice this year to amount to anything.

Q. 23. How many times last year?

A. I do not remember about that.

Further deponent saith not.

—— ——.

Sworn to before me this — day of ——, 1914.

—— ——,
Clerk and Master.

The distance traveled by this witness to and from his home to the place of giving his deposition was a total of 274 miles.

891 J. F. McNelley, the next witness being first duly sworn, deposed as follows:

Direct examination.

By J. A. Fowler:

Q. 1. Where do you reside, Mr. McNelley?

A. Down in North Georgia.

Q. 2. What place?

A. Mineral Bluff.

Q. 3. How long have you lived there?

A. I have lived there since——

Q. 4. Is that a big or just a,——

A. (Interrupting.) A town.

Q. 5. How many people live there?

A. About six or seven hundred people.

Q. 6. Is that the County seat of any County?

A. No sir.

Q. 7. Does the railroad run through it?

A. Yes sir, the L. & N.

Q. 8. What is the principal industry around there, farming?

A. Farming.

Q. 9. What business are you engaged in?

A. I am engaged in the Grocery Business, fertilizer and farming.

Q. 10. You are a merchant and farmer?

A. Yes, sir.

Q. 11. And you handle fertilizer?

A. Yes, sir.

Q. 12. How large a section of country do you sell fertilizer in.

A. I sell in Fannin, Gilmer and Union Counties.

Q. 13. Fannin County lies right along the Tennessee line?

892 A. Yes, sir.

Q. 14. Where does Union County lie?

A. Union County lies rather east of Mineral Bluff?

Q. 15. Does it join on to Fannin County?

A. Yes sir.

Q. 16. And runs along the North Carolina line?

A. Yes, sir.

Q. 17. What is the other County you mentioned?

A. Gilmer.

Q. 18. Where is Gilmer County?

A. Gilmer County lies south of Fannin County, I think, rather south.

Q. 19. How far is Mineral Bluff from the Tennessee Copper Company's plant?

A. About eight miles.

Q. 20. How far from the Ducktown Copper Company's plant?

A. I suppose about nine miles.

Q. 21. And in what direction?

A. It is east.

Q. 22. South east.

A. Yes sir, south of east or southeast.

Q. 23. Now, do you remember of the character of stack the Tennessee Company elevated?

A. Yes, sir.

Q. 24. Do you remember what year that was done?

A. I think it was in 1907 or 1908, somewhere along there, I do not remember the date.

Q. 25. Now, after that was done what was the effect of this smoke on the forest or vegetation around in that section of the country?

A. It was very serious.

Q. 26. I wish you would describe what did occur?

A. Well, it occurred to affect the timber, vegetation and the
893 crops.

Q. 27. Had the vegetation been affected much prior to that time?

A. No, sir, not much.

Q. 28. Did you notice any at all, or did you notice it to some extent prior to that?

A. Well, I do not remember any before that.

Q. 29. Did it kill any timber?

A. Yes, sir.

Q. 30. What kind of timber principally did it kill?

A. Oak and pine. Oak principally.

Q. 31. What *a*ffect did it have on the growing crops?

A. Well, it had an *a*ffect on the crops, the stuff grown, wheat, oats, and fruit and corn.

Q. 32. Of course, it would not destroy the crops entirely?
A. No sir.
Q. 33. Did you,—Could you give any reasonable cause or guess to the extent of the injury, what per cent?
A. No, sir, I could not.
Q. 34. During that time were you selling fertilizer in that section of the country you mention?
A. Yes, sir.
Q. 35. Did you travel through a good part of these three counties you mention there?
A. Yes, sir.
Q. 36. Did you,—How wide a strip was that in which you traveled?
A. Well, it was supposed to be in the three counties.
Q. 37. Did you notice the crops in the three counties?
A. Yes, sir, from the reports of my first fertilizer customers.
Q. 38. Did you have reports from various parts of those three counties?
A. Yes, sir.
894 Q. 39. How far down in Gilmer County did the damage extend?
A. I suppose half of Gilmer County.
Q. 40. Now, in addition to your reports, did you travel in those counties to some extent yourself?
A. I did not travel myself, but my customers came to me for fertilizer.
Q. 41. State whether or not that was a matter that would be under discussion beween you and your customers?
A. Yes, sir, it would.
Q. 42. And would that, or not, arise out of the fact that it was injuring their crops and they were purchasing fertilizer for the crops?
A. Yes, sir.

Mr. Drake: We except to that as hearsay.
Exception overruled; and appeal taken.

Q. 43. Now, Mr. McNelley, you also remember the installation of those acid plants?
A. Yes sir.
Q. 44. Do you remember in what year that was done, or is there anything to call that to your attention?
A. I do not know, but it seems like it was in 1897 or 1898.
Q. 45. You mean in 1907 or 1908?
A. Yes, sir, that is right.
Q. 46. Did you notice any damage to the timber during the present season?
A. This year?
Q. 47. Arising from the smoke, yes.
A. No, sir.
Q. 48. Have you noticed any damage at all to the vegetation during the present season?

A. No sir.

Q. 49. Did you notice any damage arising to the timber
895 during last season?

A. Yes, sir, a little bit.

Q. 50. Have you noticed any—when was that?

A. That was in July, I think July.

Q. 51. I wish you would state just what it was you did see at that time?

A. I noticed the leaves were a little bit brown on the timber, a little brown.

Q. 52. How many times did you notice that?

A. I noticed that several times.

Q. 53. What do you mean by several times?

A. Well, maybe one day and the next, just noticed the timber around at times.

Q. 54. From one day to the next?

A. Yes sir.

Q. 55. You noticed the smoke coming up there?

A. Yes, sir.

Q. 56. How many times did that occur during last season?

A. That occurred two or three times.

Q. 57. During the entire season?

A. Yes, sir.

Q. 58. And was that sufficient in amount to do any damage to the timber?

A. I do not think so.

Mr. Drake: I object to that question and answer as the answer is a conclusion without any facts to sustain it.

Exception overruled; appeal taken.

Q. 59. Did you notice any damage to the garden vegetation, fields or anything of that kind during last season?

A. No sir.

Q. 60. The season before, did you notice any damage to the timber or vegetation?

A. Yes, sir.

896 Q. 61. About what was the extent of that?

A. I don't know what extent it was, some little.

Q. 62. About similar to what you described as of last year?

A. Yes, sir.

Q. 63. About how often did that occur?

A. Well, it occurred some two or three times during the season.

Q. 64. Do you know whether or not that was sufficient to do any damage to the tim-er or was it just discernible on the leaves?

A. Yes, well, the leaves were burnt some, I do not think it did any damage to the timber.

Mr. Drake: Read that answer please.

(Answer read by stenographer.)

Witness: That is right.

Mr. **Drake**: I except to that on the grounds that it is a conclusion and the question was leading.

Exception overruled; appeal taken.

Q. 65. Then, Mr. McNelley, I wish you would tell us what the difference has been since the installation of these acid plants with reference to the effects of these fumes on the vegetation and timber up in your section of the country?

A. It has been considerable.

Q. 66. Is it better or worse?

A. Better.

Q. 67. Now, state whether or not the conditions you have described are typical of the various years since the installation of the acid plants?

A. Yes, sir.

Q. 68. Now, you say you sell fertilizer through certain counties there, those three counties you have mentioned?

A. Yes, sir.

Q. 69. And you travel over part of those counties?

897 A. Yes, sir, I did, but have agents through the different counties.

Q. 70. Since the installation of these acid plants what has been the effect with reference to the vegetation in the various localities in those counties with which you are familiar?

A. It has been better.

Q. 71. Is there any damage of any consequence,—Has any damage of any consequence been done by the smoke in any part of the counties where you have been?

A. There has been some damage in the last three years.

Q. 72. I wish you would describe what you have observed in the last three years, you say some little damage?

A. A little damage to the rye, a little to the wheat and a little to the fruit, and a little to the garden vegetables.

Q. 73. In what season of the year would that occur?

A. That occurred in the last three years.

Q. 74. I say in what season?

A. It was in 1913, 1912, and 1911, just a little.

Q. 75. You say just a little, do you mean it has been observable on the vegetation?

A. Just a little bit, yes sir.

Q. 76. To some extent on the leaves of the forest?

A. A little bit.

Q. 77. Do you know whether or not it was enough to any appreciable damage?

A. No, sir, I do not think so.

Q. 78. Do you know J. C. Addington?

A. Yes, sir.

Q. 79. Whereabouts does he live with reference to where you live?

A. He lives about five miles east of Mineral Bluff.

Q. 80. Do you know his place?

A. Yes, sir.

898 Q. 81. Is it on the river or on the hills?
A. No, sir, it is kinder in the mountain.
Q. 82. Did you see his corn crop?
A. No, sir.
Q. 83. State whether or not he won the premium, both for the State and County?
A. Yes, sir.

Mr. DRAKE: I except to that question and answer as irrelevant.
Exception overruled; appeal taken.

Q. 84. Did you see his corn?
A. I saw his corn as he went through Mineral Bluff.
Q. 85. What kind of corn was it?
A. It was fine corn.
Q. 86. Did you ever see anything finer?
A. No, sir.
Q. 87. Did you sell him the fertilizer with which he produced that crop?
A. Yes, sir.—Oh, I do not know whether he bought it all from me or not.

Mr. DRAKE: We except to that as being immaterial and irrelevant.
Exception — and appeal taken.

Q. 88. Did he grow that corn there?
A. Yes, sir, Mr. Addington brought his corn, his sample to Mineral Bluff and I had occasion to see it, and he asked me to look after it for him at the State Fair.
Q. 89. Mr. McNelley, state whether or not the last few years, crops have been better in your entire section of the country than they have for some time, then they ever were known to be?
A. Yes, sir.

By Mr. DRAKE: We except to the question and answer because the question is leading and the answer is a conclusion of the witness. 899
Exception overruled and appeal taken.

Q. 90. How do you know that?
A. I know it by the amount of corn we had shipped in there.
Q. 91. You mean previous to this time?
A. Yes, sir. We had not had a bushel of western corn shipped in there this year. And I do not think we will have during this season.
Q. 92. Then do or not your people through that section make sufficient corn to supply them?
A. Since last year.
Q. 93. How is it with reference to the wheat crop?
A. The wheat crops are fine so far as I can see.
Q. 94. How has it been the last few years?
A. Well, it has been off.
Q. 95. Do you know anything else?
A. Nothing more than I am a farmer. I operate on about two

hundred acres of land at Mineral Bluff, east of Isabella, and I have gotten fine crops, the best crops I ever had, this year.

Q. 96. How were your crops last year?

A. They were not so good last year.

Q. 97. Was there any damage last year as a result of these copper fumes?

A. Well, a little damage.

Q. 98. What was that to?

A. Rye, fruit and corn.

Q. 99. How long have you owned that place?

A. Well, I guess thrity,—say forty years.

Q. 100. How were your crops last year compared with your crops, say fifteen years ago?

Mr. DRAKE: We except to that question for the reason the answer should not illustrate anything in this lawsuit. 900

Exception overruled and appeal taken.

A. They are much better this year than they have been for some previous years.

Q. 101. Now, last year how did they compare with fifteen years ago?

A. They are better this year than last year.

Q. 102. I am asking about before the smoke in your country?

A. They are better this year than fifteen years ago.

Cross-examination.

By J. A. DRAKE, Esq.:

Q. 1. You say you saw damage to the crops last year?

A. A little bit.

Q. 2. And the year before that?

A. Yes.

Q. 3. How was it in 1911?

A. It was some worse.

Q. 4. How was it in 1910?

A. It was damaged pretty bad in that year.

Q. 5. Yes, a little worse then, and your corn, that is so fine this year, you mean that the prospects are fine, do you not?

A. Yes, sir.

Q. 6. It is not made yet?

A. No sir.

Q. 7. It is young yet?

A. On good land it is about waist high.

Q. 8. It has not tasseled yet, has it?

A. No sir.

Q. 9. I will ask you if the fumes on corn has—if the effect of fumes on corn is not worse about the time it tassels and silks than any other time, if a bunch of smoke comes down on it during that time? 901

A. I believe it is.

Q. 10. You cannot tell them what kind of crop you will have this year at this time?

A. No sir.

Q. 11. I will ask you if the effect of that smoke on timber is not worse in July and August than in any other season of the year, and if that is not your experience?

A. No, sir, I think last year my recollection is it was in June and July?

Q. 12. That is the worst damage?

A. Yes, sir, to the timber and leaves.

Q. 13. I will ask you if the atmospheric conditions do not have something to do with the damage the smoke will do?

A. I suppose it does.

Q. 14. Have you been, in person, all about over North Georgia, and Fannin County, and Union County, to observe the effects of this smoke for the last four or five years?

A. Yes, sir.

Q. 15. You have seen damage in all of those years?

A. Yes, sir.

Q. 16. In various parts of North Georgia?

A. Yes, sir.

Q. 17. I will ask you if you have not seen a great deal of dead timber all through that country?

A. No, sir, not very much.

Q. 18. You have seen some?

A. Some.

Redirect examination.

By J. A. Fowler, Esq.:

Q. 1. Did you, or not, say what you saw was some effects on the foliage?

A. That is all.

902 Q. 2. But whether it did any damage, I believe you said you thought probably it did not?

A. No, no, the foliage, that is all, on the foliage.

Q. 3. You saw dead timber everywhere, in all forests?

A. Yes, sir, that is right.

Q. 4. State whether or not, Mr. McNelley, you got some of the Tennessee Copper Company's money that was being paid under an agreement with the State of Georgia last year?

Mr. Drake: We except to that question and answer as being irrelevant.

Exception overruled and appeal taken.

Q. 5. How much did you get?

A. My recollection about $40.00.

Q. 6. Was that for all the damages that occurred on your two hundred acres of land?

A. Yes, sir.

Q. 7. State why it was you filed your claim?

Mr. Drake: We except to that question.

Exception overruled and appeal taken.

A. They proposed to pay damages to Union, Towns and Fannin Counties. I made a claim on my behalf for the grain, the fruit and vegetables and other things for last year.
Q. 8. Did you file it with the commission?
A. Yes, sir.
Q. 9. The arbitrators allowed it after investigation?
A. Yes sir, it was allowed.
Q. 10. Did you bring suit first?
A. No, sir.

Mr. **Drake**: We except to the answer as being irrelevant and immaterial and all other questions and answers on that subject, for the same reasons.

Further deponent saith not.

903 Sworn to before me this 19th day of June, 1914.

——— ———,
Clerk & Master.

The distance traveled by this witness to and from his home to the place of taking deposition was 274 miles.

Tom Curtis, the next witness, being first duly sworn, deposed as follows:

Direct examination.

By J. A. **Fowler**, Esq.:

Q. 1. What is your age, Mr. Curtis?
A. I will be forty-seven years old the 28th day of October. I was born in '67, two years after the war.
Q. 2. Where do you live?
A. I live in about a mile and a half of Mineral Bluff.
Q. 3. In Georgia?
A. Yes, sir, Fannin Coutny.
Q. 4. How far from the Tennessee line?
A. How far from the Tennessee line?
Q. 5. Yes.
A. Why, I think it is about, from where I live, it is about, they call it, I think, ten miles from the Bluff, and where I live it is about a mile and a half above town.
Q. 6. You are a mile and a half north of Mineral Bluff?
A. Yes, sir, I live right above town.
Q. 7. That is west?
A. Yes, sir, it is west,—I live up east of town.
Q. 8. Did you or not live over there,—Do you or not live further away from the Tennessee Copper Company's plant, and the
904 Isabella plant, than Mineral Bluff?
A. Yes, sir,—How is that?
Q. 9. Do you or not live further from the Tennessee Copper Company's plant and the Isabella plant, than Mineral Bluff?

A. Yes sir, a mile and a half further, it is about a mile and a half up there.

Q. 10. Are you a farmer?

A. Yes sir, I farm.

Q. 11. How much do you farm?

A. I have got in about thirty-five acres in corn this year.

Q. 12. How long have you farmed?

A. I have been at it all my life, in fact, I never have been,—have never missed making a crop since I was old enough to work.

Q. 13. About that tall smoke sta*ke*,—after that tall smoke stack was built to the Tennessee Copper Company's plant, what was the effect on the vegetation?

A. Before the stack was built?

Q. 14. I mean after the stack was built, and before the acid plan was put in?

A. It was pretty bad, at times it was.

Q. 15. Describe what effect it had on this country, on vegetation?

A. Well, it is like this, I would not, I could not tell, about how much effect it did have, I think you know at times.

Q. 16. What was the effect on the trees?

A. Why, there was a good deal of leaves killed and some timber killed through that country, and we thought the smoke done it

Q. 17. Had anything of the kind occurred previous t
905 that time?

A. Why, it has been getting better for the last three years

Q. 18. I am not talking about that now. I say before that stack was built, had timber been killed that way?

A. I suppose so. Yes, all the way up to the plant, all the way up through that country it had.

Q. 19. What I say, is, before that stack was built had timber been killed through there before that stack was put in?

A. I think so.

Q. 20. You know of the fact that it was put in there?

A. Yes sir.

Q. 21. But you do not know the year?

A. It has been getting better on us people up there about thre years, we have been improving the country about three years, it h not been so bad.

Q. 22. Have you noticed any damage this year at all?

A. Well, I could not tell about that, though I do not think s There has come in smoke there several different times on our stuf this Spring.

Q. 23. Do you remember at what date?

A. I think it come in about the 6th and 7th of June, the last wee in May, court week, there was some.

Q. 24. You mean last Monday a week ago, was that when it was?

A. I think there was some smoke in about last week, I do r member. I do not pay much attention to it like a heap of fellows, I am at work farming.

Q. 25. Was there any damage to vegetation, in there last year?

A. Last year, well, I could not tell about that. It looked like the stuff was damaged some little.

Q. 26. Did you file a claim with the commission?

906 A. Yes, sir, I did.

Q. 27. How much did you get?

A. $40.00 out of it.

Mr. **Drake**: We object to that as being irrelevant and incompetent.

Exception overruled and appear taken.

Q. 28. How was it the year before?

A. The year before?

Q. 29. Yes.

A. Well, we made fair crops out there.

Q. 30. State whether or not your crops last year were as good as they were fifteen or twenty years ago?

A. That is further back that I would want to say.

Q. 31. Are you running a thrashing machine?

A. Yes.

Q. 32. How long have you been running it?

A. Well, I have been helping thrash ever since I was big enough, ever since I was a boy.

Q. 33. Through what parts of Georgia have you been threshing?

A. I have been through in Fannin County, and plum through to North Carolina, and up here in Cherokee County, all away around down towards Ellijay and back around.

Q. 34. Have you not thrashed all around over Fannin County?

A. Have I thrashed over all?

Q. 35. Yes.

A. What did you say?

Q. 36. Did you thrash over Fannin County last year?

A. Some of it, I did not thrash over. I did not thrash over as much territory as I have heretofore, I have not for three years.

907 Q. 37. In going around with the thrashing machine you observed the crops as well as other crops?

A. How?

Q. 38. I say in going around with the thrashing machine you observed the other crops as well as the wheat crop, that is, you noticed the corn crops and oat crops?

A. Yes sir.

Q. 39. You thrashed both oats and wheat?

A. Yes sir, they do not raise as much oats, and have not for several years, just wheat and rye.

Q. 40. State how the crops have been in North Georgia for the last three years?

A. Well, for the last three years I have thrashed more, we have three machines in there, and in about a mile and a half apart, three machines, three miles to four miles apart, I think there is about five in that district, we divide up the neighborhood around there.

Q. 41. I am asking—How have the crops been in that section in the last two or three years?

A. The wheat and rye?

Q. 42. Yes.

A. It is better, there was a yonder more than there was in my young days, when we first set in to thrashing we run from six to seven thousand bushels with our machine around there, and I reckon the others thrashed about the same, at least they told us that tale, you know.

Q. 43. State whether or not you have ever known the wheat crops to be better?

A. No, sir, I do not think there was. There was a lot more corn raised than in my young days, when I was young.

Q. 44. What about the crops of rye in the last two or three years?

908 A. They have been good.

Q. 45. Did you ever know them to be better in the history of North Georgia?

A. No, sir, I do not think so.

Q. 46. How about your corn crop?

A. It is pretty fair.

Q. 47. Has there ever been a better one in the history of North Georgia, when there has been more corn, and other grains raised in the last two or three years?

A. No, I do not believe so. The people are farming better than they did several years ago, from what a man sees.

Q. 48. And they are raising more corn?

A. Yes, sir.

Q. 49. They are not supporting themselves principally and do not have so much grain shipped in?

A. I do not know so, but the merchants all tell me that they do.

Q. 50. The merchants also buy corn and ship it out?

A. Yes, they buy corn, I do not think we will have to have any corn shipped there at all this year, from the looks of things. I think we have never had so a good crop. There is a great deal of corn around among the merchants.

Q. 51. Do you know Mr. Addin-ton, J. C. Addington, who made the big crop?

A. Yes sir. I have known him ever since he was a boy.

Q. 52. You know his corn crop?

A. I have passed there but never did see it.

Q. 53. Did you see his corn?

A. No, I never did go to see it. He tried to get me to.

Q. 54. You know he took the premium for having the

909 best corn in the State?

A. That is what they say.

Mr. **Drake**: We except to that because hearsay.

Exception overruled and appeal taken.

Q. 55. How far is his farm from you?

A. About five miles.
Q. 56. Is he further east?
A. Yes, it is laying east from me further that way.

Cross-examination.

By J. A. Drake, Esq.:

Q. 1. They damaged you pretty badly last year, didn't they, Mr. Curtis?
A. Well, some, a man could not tell, I mean exactly enough to estimate, I just left it to them arbitrators.
Q. 2. You took them out to see it, didn't you?
A. To examine it.
Q. 3. You could smell the smoke and see it couldn't you?
A. Sometimes.
Q. 4. It smells like sulphur smoke, don't it?
A. I suppose so.
Q. 5. And it bites or burns the leaves something like frost, you have seen that effect, and you have just described it, I believe?
A. It does. It did not injure the timber up there last year.
Q. 6. Did the crops, you saw the effect on the crops?
A. Yes sir, I think I did.
Q. 7. You know the effects of it?
910 A. Sometimes.
Q. 8. You say you raise a great deal more corn than you did before?
Q. 9. There is a great deal more fields in than there used to be?
A. Yes, and people are getting better places.
Q. 10. A great deal more land is cleared?
A. Yes.
Q. 11. And they have better tools?
A. Yes sir.
Q. 12. And they break the land better and prepare it and farm better?
A. Yes sir.
Q. 13. And they also use fertilizers?
A. Yes sir.
Q. 14. Ans then the smoke comes over and burns your crops after all these improved methods applied to the farm, and you can see the effects and damages, you saw it and filed a claim and got damages?
A. Yes, a little.
Q. 15. The smoke was pretty bad back along about 1910?
A. I think so, yes sir.
Q. 16. Worse then than this year?
A. 1910?
Q. 17. Yes.
A. I suppose so.
Q. 18. And was a heap worse in 1911 than it was in 1914?
A. I think so, for the last four years it has been improving.

Q. 19. It improved all along, back then it done a lot of damage in 1910?

A. Yes, it did.

911 Q. 20. Anybody could see the effects of it on the forest and timber *and* in 1910 and 1911, couldn't they?

A. Yes.

Q. 21. I believe you told Mr. Fowler, on your original examination about June 6th or 7th of this year there was a great deal of smoke to be observed in there?

A. I think it come up then yes.

Q. 22. Could you smell it?

A. Well, I could smell a little, but not strong like it was three or four years ago.

Q. 23. It was not as strong as it was in 1910 and 1911?

A. No.

Q. 24. You could see it, but could you see it as you could in 1910 and 1911?

A. No.

Q. 25. Now, about the crops this year, you cannot tell about what corn is going to do this year?

A. I cannot, it is pretty, now.

Q. 26. It is pretty now, But I will ask you if it is not a fact that the smoke damage is not more det*er*mental to corn when it — tasseling and silking than any other time——

A. I suppose so; it is decided among the farming class of people that it does.

Q. 27. Is not that the reason they don't raise oats in that section, because — the smoke, and because the smoke hurts it worse than anything?

A. I think it does get it worse.

Q. 28. They used to raise it there?

A. Yes, they used to, but about when I was a boy.

Q. 29. Quit raising them now?

A. Yes, I don't thrash enough to mention.

Q. 30. You don't know yet whether you are going to get any of the Tennessee Copper Company's money or not?

912 A. I do not.

Q. 31. You have not made up your mind whether you will file a claim?

A. If they award damages in there, it is just up to them whether we will get any or not.

Further Deponent Saith Not.

Sworn to before me this 19th day of June, 1914.

——— ———,
Clerk & Master.

The distance traveled by this witness to and from his home to the point of taking depositions and return was a total of 276 miles, or 138 miles each way.

913 P. F. **Williams**, the next witness, first being duly sworn, deposed as follows:

Direct examination.

By J. A. **Fowler**, Esq.:

Q. 1. Where do you live, Mr. Williams?
A. I live up above Mineral Bluff in Fannin County.
Q. 2. Do you live near Mr. Curtis?
A. Yes sir, about a mile.
Q. 3. How old are you?
A. How old am I?
Q. 4. Yes.
A. Fifty one years old.
Q. 5. How long have you lived up there?
A. I have lived up in that section all my life.
Q. 6. Are you a farmer?
A. Yes.
Q. 7. Have you been farming all your life?
A. Yes.
Q. 8. Do you own a farm up there?
A. Yes.
Q. 9. How much?
A. About a hundred and fifty acres.
Q. 10. What do you cultivate on that land?
A. Corn and wheat and rye.
Q. 11. Do you raise any oats?
A. No sir, I quit that.
Q. 12. You quit raising oats, not enough money in it?
A. The last time I sowed, I sowed it with grass and when I got my stand of grass it was in meadow, I never sowed any more oats.

Q. 13. Now, Mr. Williams, what effect did the fumes have
914 on the vegetation and crops in your neighborhood, in a few years after this high stack was put up by the Tennessee Company?
A. It had the usual effect on it.
Q. 14. Tell what the usual effect is?
A. The leaves about on the timber was killed.
Q. 15. Did it kill any timber?
A. Yes.
Q. 16. Did it hurt the crops?
A. I suppose it did, the tassels were killed.
Q. 17. You mean to the corn?
A. Yes sir.
Q. 18. You still raise corn?
A. Yes.
Q. 19. What kind of corn would it grow when the tassels were hit?
A. The corn would be small and chaffy.
Q. 20. The ears would be small?
A. Yes.
Q. 21. Did the sun seem to have any effect on the silks?
A. The silks would burn up, dry up.

Q. 22. Now, have you noticed any damage in there this year?

A. No sir, I have not.

Q. 23. About through the forests, the leaves of the forests or vegetation, any damage there?

A. No sir, nothing only I saw apple trees, the fruit dropped of- of them.

Q. 24. Do you know what caused that?

A. No sir.

Q. 25. State whether or not you have had some heavy frosts up there this spring?

A. We had in May.

915 Q. 26. The apples have dropped off?

A. Yes.

Q. 27. What kind of season did you have up there?

A. A dry one.

Q. 28. Did you have a drought for about six weeks?

A. Yes sir, it came along in May.

Q. 29. Did you notice any signs of sulphur fumes on the leaves this year?

A. No sir, I have not.

Q. 30. Did you or not undertake to suggest that these apples fell off in consequence of sulphur fumes?

A. I do not know what caused it.

Q. 31. You did have late frosts?

A. We had smoke come down in the coves, and after that the fruit dropped off.

Q. 32. After that came down in the coves did you see any leaves dried up by the smoke?

A. On the irish potato tops, some like them were scorched, I do not know whether it was dry weather or smoke.

Q. 33. That was all you did notice, on the potato leaves and the irish potatoes?

A. Yes sir, this year.

Q. 34. How was it last year?

A. Along in the fall some late stuff dried up, corn tassels was all I saw last year.

Q. 35. What sort of corn did you have last year?

A. Why, mine was pretty chaffy.

Q. 36. Now, when you speak about it being chaffy, what do you mean?

A. What I call chaffy is when it is loose on the cob, it got ripe too quick.

Q. 37. Did it have a good sized ear?

A. Yes.

916 Q. 38. How far do you live from that fellow Addington that won the premium for the State and County?

A. Which, around, or air course, you mean?

Q. 39. Yes, the air course.

A. Well, three miles or three miles and a half.

Q. 40. Did you see his crop?

A. No, sir, I never went to see it. I aimed to go but did not get to go. I heard so much talk of it.

Q. 41. Did you raise any wheat last year?

A. Yes sir.

Q. 42. Did you have a good crop?

A. A pretty good crop.

Q. 43. Did you raise any rye?

A. Yes.

Q. 44. Did you have a pretty good crop of rye?

A. Yes sir, a tolerable good one.

Q. 45. Did you make anything like what your wheat and rye crop was the year before, 1912?

A. Well, I believe my crop was a little better last year, than the year before.

Q. 46. For the last few years, three or four years, have you noticed any effect on the leave*w* of the forests?

A. No sir, for about three years I have not noticed much. Not as bad as it was before.

Q. 47. Well, is there any comparison now to what it was before?

A. No sir.

By Mr. DRAKE: We object to that question and answer as being suggestive of the answer and the answer is a conclusion of the witness.

Exception overruled and appeal taken.

917 Q. 48. Speaking about your tassels drying up last year, did you or not have a dry season?

A. I don't hardly know. I cannot recollect h*i*w the season was last year.

Q. 49. Is it not a matter of fact that the fall season came on very early and it was very dry last year?

A. I do not recollect.

Q. 50. Did you file any claim to get any part of the Tennessee Copper Company's money last year?

A. Yes sir, I put in a little claim with the rest of them.

Q. 51. How much did you get?

A. I got twenty five dollars.

Cross-examination.

By J. A. DRAKE, Esq.:

Q. 1. Mr. Williams, you were asked about last year, if there was a drought; I will ask you if last year was not the best corn crop in Georgia in the history of the state?

A. Well, take it all over, yes, it was, that is the report.

Q. 2. And your corn tassels, they burnt up in July you say?

A. Yes sir.

Q. 3. I will ask you what the effect of smoke is on the tassels?

A. It dries them up.

Q. 4. What color did it turn them?

A. A sort of yellow.

Q. 5. What effect did it have on the silks?

A. It dried them up, looked like it was frosted.

Q. 6. Before they ought to die?

918 A. Yes sir, before they ought to die.

Q. 7. That is what you think made your corn chaffy, as you have described?

A. Yes sir.

Q. 8. How many times last year did you see that smoke down in there?

A. I could not say.

Q. 9. A great many times?

A. I do not know, I did not watch the smoke.

Q. 10. Was it few or many times last year?

A. It was not many times last year.

Q. 11. When it did come, could you smell it?

A. Yes sir.

Q. 12. Could you see it?

A. I could see the smoke down in there.

Q. 13. Talk a little louder.

A. Yes sir, I could see the blue smoke.

Q. 14. This year, how many times have you seen and smelt the smoke down in there?

A. I do not know, I have not paid any attention to it.

Q. 15. About how many times?

A. About two or three times, I reckon.

Q. 16. I will ask you if on Last Monday a week ago I think that was June 8th, 7th or 8th, along there, if the smoke was not down in that neighborhood pretty bad?

A. I do not recollect, I never paid any attention to it only when I smelt it strong.

Q. 17. You do not remember that?

A. No sir, I do not, I am up there in a little cove.

Q. 18. You say it is better than it was several years ago?

919 A. Yes sir.

Q. 19. I will ask you if it was worse in 1912 than it was in 1913?

A. Yes sir.

Q. 20. And I will ask you if it was not worse in 1913 than it was in 1914?

A. I do not recollect, I know it is not as bad as it used to be.

Q. 21. That is all you know, that it is not as bad as it used to be. I will ask you if it was not very bad in 1910 and 1911?

A. I do not recollect how that was. I know it is not as bad as it used to be.

Q. 22. That is all you can state?

A. That is all. I never paid any attention to it.

Q. 23. Did you observe much damage to the timber in 1912, did you detect where it burnt the leaves?

A. No sir.

Q. 24. Did you observe much effects of it in 1910 and 1911 where it burnt the leaves?

A. I do not recollect.

Further Deponent Saith Not.

—— ——.

Sworn to before me this 19th day of June 1914 .

—— ——,
Clerk & Master.

The distance traveled by this witness from his home to the place of taking deposition and return was a total of 276 miles, or 138 miles in each direction.

920 T. A. Byers, the next witness, having been duly sworn, deposed as follows:

Direct examination.

By W. B. Miller, Esq.:

Q. 1. Where do you live?

A. I live three and one half miles east of Mineral Bluff, near Morgantown.

Q. 2. In Fannin County, Georgia?

A. Yes sir.

Q. 3. How long have you lived there?

A. I have — there all my life, except about a year or two, I worked in the mines.

Q. 4. How far do you live from Copperhill, Tennessee?

A. I suppose a direct course, it is ten or eleven miles.

Q. 5. You have lived there for several years last past, I believe?

A. Yes sir.

Q. 6. At the time the tall stack of the Tennessee Copper Company was put into place, did the fumes from that plant before they built the acid plant, affect the section or not?

A. Yes sir.

Q. 7. What effect did they have on your crops and the timber down through there when that stack was first put up?

A. In the timber, the leaves would crisp up on it, and turn brown.

Q. 8. After the acid plants were built and put into operation, then what happened?

921 A. Well, you could not see any sign of it now.

Q. 9. Is there any damage being done through your section?

A. No, sir.

Q. 10. Was there any damage being done down through your section?

A. Not in our section that I can tell, if there is any damage I cannot tell it.

Q. 11. What business are you engaged in?

A. Farming and truck farming.

Q. 12. What did you do with the trcuks you raise?

A. I haul it to Ducktown.

Q. 13. Do you sell it in the Ducktown section to the operatives and employees of the mines?
A. I sell to the merchants, sell to Mr. Quinn, at the Isabella Store and the Ducktown Store.
Q. 14. What do,——

Mr. **Drake**: I except to the question and answer as being irrelevant.

Q. 15. You haul your products over to the supply store in the vicinity of Isabella and Copperhill and sell them?
A. Yes sir.
Q. 16. For how many years have you been engaged in truck farming?
A. I have been engaged in it for about fifteen years except three years I quit farming and worked in the mines.
Q. 17. Have you been engaged in truck farming for the last four or five years?
A. Yes sir.
Q. 18. What character of garden vegetables do you grow?
922 A. I grow beans, onions, cabbage, peaches, beans and tomatoes.
Q. 19. How many acres did you have in cultivation as a truck farmer last year?
A. Well, I do not know exactly, I suppose about two acres, an acre and a half or two acres.
Q. 20. What did you realize from the products grown on that one to two acres last year?

Mr. **Drake**: We except to that question as the answer could not illustrate anything in this issue.

A. Me and my uncle worked together, and we realized, we did not keep any books, but we realized from five hundred to one thousand dollars.
Q. 21. Five hundred to one thousand dollars per acre?
A. No sir, for the two acres.
Q. 22. From the two acres you had in?
A. We don't keep any books, and cannot answer positively but we realized over five hundred dollars.
Q. 23. How many acres did you have in truck farming the year before?
A. About the same land, put in about the same amount.
Q. 24. What did you get in dollars and cents from that acre or two acres year before last?
A. I cannot answer that positively. We do not keep any books, and I cannot answer positively—about the same amount though I guess.
Q. 25. How many acres of land, or what quantity of land have you in cultivation this year?
A. We have about eight acres in corn and an acre and a half or two acres in truck.

Q. 26. Have you been hauling truck to the Ducktown
923 vicinity this year?

A. Yes, sir.

Q. 27. How many loads have you hauled this year?

A. I have hauled eight or nine loads, I am not sure which.

Q. 28. What do these loads yield?

A. They bring from fourteen to thirty dollars, I have sold stuff there that brought me forty five dollars a load, but not this year.

Mr. Drake: We except to that evidence as being irrelevant and incompetent.

Q. 29. What kins of products usually yield from fourteen to fifteen dollars a load?

A. Such as mustard, turnips, greens, turnips.

Q. 30. What kind of a laod would yield you thirty to thirty-five dollars?

A. Cabbage and beans and tomatoes.

Q. 31. You say these grow right around where you live?

A. I did not tell you about the tomatoes when you asked me a while ago. We make more off of our tomatoes than anything else we raise.

Q. 32. Has there been any damage done by smoke down in your section this year or last year?

A. Not that I can tell. People claim they have but I cannot see where it is damaged any.

Q. 33. Did you file any claim against the Tennessee Copper Company for damages?

A. No sir.

Q. 34. You do not claim that they are damaging you any?

A. No sir.

Q. 35. Which does the most damage to apples and crops, the smoke that comes down or the time they waste looking for smoke?

A. I think the people agitating the smoke question does more damage than the smoke does, that is my opinion.

924 Mr. Drake: We except to the question and answer as irrelevant.

Q. 36. They set around and talk about it?

A. Yes, sir.

Q. 37. These garden products you have been growing for these years past and hauling up to Ducktown, are they grown in glass and protected from the smoke?

A. No sir, they are grown in the open, only the plants they are forced under canvas, as a hotbed to protect them in the early spring.

Q. 38. That is what causes your plants to come up?

A. Bring them up early.

Q. 39. If the smoke could come down so as to do damage and do damage to people's timber and corn, state whether or not it would damage your products on your truck farm?

A. It looks to me like if it would damage one thing, it would damage another.

Mr. **Drake**: We except to that question and answer as being a conclusion of the witness, without facts stated to base it upon.

Exception overruled and appeal taken.

Q. 40. State whether or not tomato plants are most easily affected of all vegetables or vegetation?

A. I do not know.

Q. 41. You do not know what smoke affects first, what is the most tender?

A. No sir.

Q. 42. How close do you live to the man that took the premium for raising the largest quantity of corn on an acre in Georgia last year?

A. About three miles.

Q. 43. Do you know that man Addington, J. C. Addington?

925 A. Yes sir, I have known him all my life, went to school with him.

Q. 44. State whether or not he took the premium both at the State Fair and the County Fair as having the bumper corn crop?

A. Well, he took the premium for having the best acre of corn in the State on Upland.

Q. 45. How much did he raise on that acre?

A. He raised 136 bushels and 42 pounds, I believe, 42 pounds or 52 pounds.

Q. 46. On upland?

A. Yes sir, on upland, and the poorest strip of country you ever saw, I wish you would go up and see it.

Cross-examination.

By J. A. **Drake**, Esq.:

Q. 1. This fellow Addington that you speak of, he lives over still further from the plant?

A. He lives a little further.

Q. 2. There is a big lot of hills and mountains between you and Addington?

A. No sir, not very many, it is a hilly country.

Q. 3. There is a big lot of hills, and does not the shape of the hills and mountains affect the way that smoke goes?

A. I do not know, you know the river runs up there, the Toc River, and it is supposed to follow that valley from the Tennessee plant up the river.

Q. 4. I mean in the neighborhood, one side of the hill around these plants be burned up and the opposite side there will be timber and growing vegetation, is not that a fact?

A. I cannot say, I will tell you I have not seen any sign of the smoke where I have been this year or last.

Q. 5. Will you please answer my question, Mr. Byers.

A. Well, give me the question again, I did not catch it.

(Question read.)

926 A. It is not that way since they built these acid plants. It used to be that way.

Q. 6. Don't you know right now that within a mile of Ducktown, that the sides of the hills next to these plants are burnt up, with nothing on them, and on the opposite sides they have some little gardens, started in the coves where the smoke cannot get to it?

A. I do not know, there is some little gardens there in about two or three hundred yards of the smelters, all right in there and along in two or three miles.

Q. 7. You do not know anything about any damage in that country in the last two or three years?

A. I cannot answer that.

Q. 8. If there has been any damage at all, you do not know it?

A. No sir.

Q. 9. You cannot see it anywhere?

A. No sir.

Q. 10. You make your living selling your stuff to these plants?

A. I make my living by farming and selling to these people down there.

Q. 11. Is it not a fact that coves of the mountains facing towards these plants, the smoke will come into them and settle and do more damage than it will in coves that face in an opposite direction?

A. I cannot tell you what it does.

Q. 12. Have you not observed that in your travels through that country?

A. No sir, not since these plants have been in operation.

Q. 13. Any time, I am talking about?

A. I have not observed it.

927 Q. 14. You never did observe it then. Have you seen smoke down in your neighborhood anytime this year?

A. Yes.

Q. 15. Have you smelled it, the acid smoke?

A. No sir.

Q. 16. Was it Ducktown smoke?

A. I cannot tell where it come from.

Q. 17. Where was it?

A. I do not know, it was down close in there.

Q. 18. You answered Mr. Miller a little while ago that you thought the people in North Georgia and in Fannin County did more damage by their talk and agitation that the smoke did. I want to ask you if you say all their complaints are unfounded?

A. Well, I am not going to answer that. I cannot answer that question.

Q. 19. Do you mean to say that your neighbors that claim damages for this smoke are putting up fraudulent claims and lying when they make these claims?

A. I do not believe there is ten per cent of them that will go on the stand and swear to them.

Q. 20. Answer my question, Please sir. Answer the question I asked you.

A. Let us have the question again.

(Question read.)

A. I think that is an unfair question. I am not supposed to answer that, am I obliged to.

Q. 21. I want you to answer the question?

A. They may think they are. I do not know what they think about it.

Q. 22. I am asking you if you think they are every one perpetrating a fraud and lying when they make these claims?

A. I think part of them are.

Q. 23. Now then do you know J. F. McNelley?

A. Yes sir.

928 Q. 24. Do you know Tom Curtis?

A. Yes sir.

Q. 25. Do you know T. F. Williams?

A. Yes sir.

Q. 26. Are they honest men, do you think?

A. Yes sir, I have nothing against them that I know of.

Q. 27. Would you say those men would put up a fraud on these companies in claiming damages?

A. I do not know whether they would or not.

Q. 28. If they are honest men do you think they would?

A. I do not think they would, if they were honest men, I do not think an honest man would.

Q. 29. If they collected damages off of the Tennessee Copper Company last year for damages to their crops, do you consider that they practiced fraud on that company?

A. Well, I think the way they looked at that, they looked at that, that the Tennessee Copper Company had to pay $16,000.00 which was to be divided up, and they thought they would get their part of it.

Q. 30. Please answer my question, Mr. Byers?

A. Let us have the question again.

Q. 31. Do you think that they perpetrated a fraud, or in other words, stole that money from that company, or from the State of Georgia, who held the funds?

A. No sir, I do not think they did.

Redirect examination.

By W. B. Miller, Esq.:

Q. 1. Do you think they took that money because it was floating around loose?

A. Yes sir, that is what I think.

Q. 2. The money was being given out and they thought they would take part of it? 929

A. Yes sir.

Q. 3. Have you had occasion to pass through the territory that lies between Mineral Bluff section and Copperhill frequently?

A. I pass through there twice a week, Tuesdays and Thursdays.

Q. 4. Did you see the crops growing along the road, orchards and wood lands?

A. Yes sir.

Q. 5. If there is any substantial damahe being done to the territory between Mineral Bluff and Copperhill, I will ask you whether or not you would be bound to know it?
A. Yes sir, I would see it.

Mr. DRAKE: We except to that question on the ground that it is original testimony and should have been brought out in chief.

Further Deponent Saith Not.

—— ——.

Sworn to before me this — day of ——, 1914.

—— ——.

This witness' mileage is 280 miles.

930 C. G. BAUGH, the next witness, being first duly sworn, deposed as follows:

Direct examination.

By W. B. MILLER, Esq.:

Q. 1. Mr. Baugh, what official position, if any do you hold in Fannin County, Georgia?
A. I am County Surveyor.
Q. 2. How long have you lived in that County?
A. I have been living there forty years.
Q. 3. Are you engaged in any other business except that of surveying?
A. I inspect timber.
Q. 4. Have you or not been through that county doing surveying during the past four or five years?
A. Yes sir.
Q. 5. What portion of that county do you live in?
A. I live at Mineral Bluff, about the central portion?
Q. 6. Are you or not well acquainted with that section of the country that lies between Mineral Bliff and Ducktown, and also to the eastward and westward?
A. Yes sir.
Q. 7. For how many years have you been acquainted with that section?
A. I have been acquainted with it forty years.
Q. 8. Do you remember what effect, if any, the erection of the tall stack of the Tennessee Copper Company had on the growing vegetation, timber and gardens in your section?
A. Yes sir, it had a bad effect apparently so far as timber is concerned, and vegetation.
931 Q. 9. Was that condition varied in any way by the erection and installation of the sulphuric acid plants, by the two companies, the Tennessee and the Ducktown companies?
A. Yes sir.

Mr. DRAKE: We except to that answer as being a conclusion as being without facts stated on which to base it.
Exception overruled and appeal taken.

Q. 10. Now, state the facts on which to base it tell us the change in conditions since the acid plants were put into operation.

A. I cannot see that any serious damage is being done away from the mines since these plants have been put in, these acid plants.

Q. 11. Have you or not been into the mountains that forms the rim of the basin, known as the Ducktown Basin?

A. I have been all over that section more or less for the last twenty years.

Q. 12. Have you been on the sides of those mountains facing the Ducktown Basin?

A. Yes sir.

Q. 13. Have you had occasion to go into those mountains frequently?

A. Yes sir. I have been in the Pack Mountains, Frog Mountains and others recently.

Q. 14. Have you or not been through the timbered sections of the country known as the Cumberland Plateau?

A. Yes sir.

Q. 15. What counties?

A. Through Bledsoe, Van Buren, Grundy, Fentress and other counties, and I have noticed more dead and dying timber in that section than in our section.

932 Q. 16. Those counties you named, Bledsoe, Van Buren and others are in Tennesee?

A. Yes, sir.

Q. 17. Do they or not comprise large tracts of timbered lands?

A. Yes, sir.

Q. 18. Have you or not been in what is known as the Great Smoky Section of the country?

A. Yes, sir.

Q. 19. What territory, what state or what counties?

A. I have been in Swayne, North, Sevier counties, Tennessee, Munroe County.

Q. 20. Tennessee?

A. Yes, sir.

Q. 21. How did you find the death rate of timber in the Great Smoky Mountain ranges as compared with the North Georgia section lying contiguous to the Copperhill territory?

A. I noticed as much dead timber in that section as I did in this.

Mr. Drake: We except to that class of testimony as being irrelevant and incompetent and in no way illustrating the issues in this case.

Q. 22. I understand you have found as much dead timber in the Great Smoky Mountain section as you did in the North Georgia section?

A. Yes, sir.

Q. 23. How recently were you in the Great Smoky Mountains to take these observations?

A. I was there last year and the year ebfore. I have been there for several years, every year.

Q. 24. How recently were you in the Cumberland Plateau?

A. I was in the Cumberland Plateau in March?

933 Q. 25. Of this year?

A. Yes, sir.

Q. 26. Were there any sulphuric acid plants, or smelting operations, or other operations that would deal destruction to timber in the Cumberland Plateau of the Great Smoky Mountain sections?

A. No, sir.

Q. 27. It appeared to be just the normal death rate of timber?

A. Yes, sir, seems to be a great deal of dead timber.

Q. 28. What kind of crops are grown in your section of the country, and the section lying between you and Copperhill?

A. We are growing fairly good crops there, in fact I believe better than we did several years ago.

Q. 29. How does the quantity of corn raised down there now, compare with the quantity that was raised up to say five or six years ago?

A. There is more corn in the country now than there was five or six years ago, corn seems to be plentiful in the county, corn to sell.

Mr. Drake: We except to that answer as being a conclusion and being irrelevant.

Q. 30. Up to five or six years ago, where was the corn supply drawn from, did you grow enough to supply the demand in your section?

A. A few years ago the merchants bought more or less corn from a distance, now they get it from the country there is a great deal of corn in the county now, people are farming better and the land produces better results and we are fertilizing more and get our stuff in better cultivation.

Q. 31. You do not have to ship corn in from other states now?

A. No, sir.

933½ Q. 32. Do you know a man by the name of J. C. Addington?

A. Yes, sir, I know Addington.

Q. 33. How far does he live from you?

A. He lives about five miles east of us.

Q. 34. Do you know of his corn crop last year?

A. His corn crop?

Q. 35. Yes, what kind of corn crop last year did he have, what can you tell us about the corn crop last year, raised by this man Addington?

A. He got the premium from the State and County for the best corn, he growed 136 — and 58 pounds on one acre.

Q. 36. I show you a copy of Morris Fertilizer Company's 1914 Yearbook, is that booklet distributed pretty generally throughout your section, to the farmers?

A. Well, I could not say.

Cross-examination.

By J. A. Drake, Esq.:

Q. 1. Mr. Baugh, who was with you when you went over on these inspection tours on the Cumberland Plateau?

A. On the Cumberland Plateau?

Q. 2. In Fentress and those other counties?

A. Well, Mr. Wilson of West Virginia was with me in March, I was showing him some timber lands, M. M. Wilson of West Virginia.

Q. 3. What is his business?

A. He is a timber man, sawmill man.

Q. 4. What was your business, you say you were in that country?

A. I was showing him some timbered lands.

Q. 5. For whom?

A. I was showing him for myself.

Q. 6. Do you own timber there?

A. I have some, yes.

934 Q. 7. You have timber in all these various counties you mentioned?

A. Yes, sir, I have some options, yes, on the timber and I was showing it to him.

Q. 8. I will ask you if you had options on timber in all the counties you described there in your original examination?

A. Well, I was sent out to show these different counties.

Q. 9. You were sent out by whom?

A. Well, up in Sevier County, Tennessee, I was there about a year ago. I showed that to Babcock Lumber Company.

Q. 10. Answer the other question first, we want to get through.

A. Which question?

Q. 11. The question about being sent out yonder, who sent you out there and why were you there?

A. In Bledsoe County?

Q. 12. Yes, Overton and those counties you named in the Cumberland Plateau?

A. I was out in Van Buren and Grundy Counties, I went out there, I was showing a party from Pennsylvania a tract of 30,000 acres I have an option on from Mr. Potts of Chicago.

Q. 13. How many counties did you name a while ago that you had been in looking for timber?

A. I named Van Buren, Bledsoe and Fentress.

Q. 14. Were you through Cumberland County?

A. I went to Fentress I went to Morgan County, and come back, got off the train twenty five miles this side and drove through the country.

Q. 15. Have you got timber there also?

A. At that time I had an option on some timber land in Fentress County.

Q. 16. You were not down there to inspect smoke damage
935 and timber?

A. No, sir.

Q. 17. Or sent there by the copper companies?

A. No, sir.

Q. 18. In any of these counties, did you go out there at their instance?

A. No.

Q. 19. Have you ever been inspecting for them?

A. No, not in timber.

Q. 20. In timbers, or in any other way, have you worked for them?

A. I have never done any inspecting for them.

Q. 21. Have you worked for them in any capacity?

A. Well, I have done a little work.

Q. 22. What kind of work?

A. I got some information for them.

Q. 23. What kind of information?

A. About the North Georgia Realty Company, who they were.

Q. 24. Who the North Georgia Realty Company was?

A. Yes, sir.

Q. 25. That was a kind of detective work, wasn't it?

A. Well, it was to find out who they were.

Q. 26. How do you account for the dead timber in the Cumberland Plateau?

A. I am inclined to think insects got into the timber and killed it more or less.

Q. 27. You do not know it, do you?

A. Not positively.

Q. 28. You are no expert on that?

A. I have been looking over timber a long time. I can just tell when I look at the timber.

Q. 29. That was badly affected with worms?

936 A. All those sections are affected with dead timber, of course, there is a good deal of dead timber there.

Q. 30. It was very bad forest for dead timber.

A. A good deal of dead timber.

Q. 31. And it was worse than around Ducktown.

A. Yes, in that section there it is pretty bad.

Q. 32. It is pretty bad around Ducktown for dead timber?

A. Well, right around and aways it is a little bad.

Q. 33. Isn't it a fact, Mr. Baigh, that starting out from these copper companies plants that almost all of the timber is killed?

A. In a close-in radius, there is a little basin around where it is killed, of course.

Q. 34. I will ask you if, as you gradually go further and further away from these plants if conditions are not better as to the vegetation, trees and everything else?

A. Well, conditions as I stated are fairly good and in these mountains, east of the Ducktown Sulphur Copper and Iron Company's plant. They are pretty good in there.

Q. 35. Please answer the other question that I asked you, you know what I asked?

A. Well, there is some dead timber in there.

Q. 36. Please answer the question?

A. I believe it is a little better as you go west from the Tennessee Copper Company, you get back and I think the damage done in the section has been done by that high stack.

Q. 37. Please confine your answer to the question and answer it fully?

A. As I have before stated, I found dead timber in all sections as I go west from the Tennessee Copper Company's plant, and when I get further back from them, I find lots of dead timber.

Q. 38. Don't you know what I mean by my question, Mr. Baugh?

937 A. Well, I am stating the facts as I see them.

Q. 39. Did you understand the question I asked you a moment ago?

A. Well, please state it again.

(Question read.)

A. The young vegetation and trees near the Ducktown Copper Company's plant is in as good condition as they are away from the plant.

Q. 40. Mr. Baugh, you can answer that question yes or no; please do so.

Mr. Miller: I respectfully submit the witness has answered the question, a half dozen times, and he is not compelled to say yes or no; he simply gives the facts as I understand he believes them to be.

Mr. Drake: I respectfully insist that the question is one that can be answered directly and requires a direct answer, and the witness has evaded a direct answer in every way, and is not answering the question in any manner.

Mr. Miller: I respectfully submit he has not evaded in any manner. You have a couple of stacks and ask about two plants and his answer about the two stacks and two plants, he could not say, as he says, yes to one and no to the other.

Q. 41. I will ask you the question again. Starting out from the Ducktown Copper Company's plant at Isabella, Tennessee, state whether or not the condition of timber and all vegetation improves as you go further away from that plant?

A. Well, the condition of the timber that is left, I am not going to evade the question now, the condition of the young timber that is left in the vicinity of that plant is good now, of course, there is some dead timber, but when you get in the Pack Mountains, three or four miles away, the timber is in good condition and has little dead timber, as any timbered section; But as I stated, when 938 you go west from the Tennessee Copper Company, there is a lot of dead timber, and when you get further back it is better.

Q. 42. Is there as much dead timber eight miles southeast from the Ducktown Copper Company as there is two miles southeast from the *it in the* State of Georgia?

A. If you will say three or four miles, there is as much three miles as there is in eight miles of the Ducktown company plant.

Q. 43. Is there as much in fifteen miles south as there is in seven and eight miles?

A. I believe there is.

Q. 44. Twenty miles down in Gilmer County, is there as much dead timber as there is in eight miles of the plant?

A. I believe there is.

Q. 45. Are you familiar with the Flat Creek country east of Blue Ridge?

A. Yes, I have been in the Flat Creek country.

Q. 47. When?

A. I was there in 1911 and I do not know whether I have been there since or not.

Q. 48. You do not know what the conditions are there now?

A. No, not to-day.

Q. 49. You know what I mean, last year or so.

A. No, I do not think I have been there in twelve months.

Q. 50. Do you know what the conditions are through that country in the last two years down around Whitepath and Cherrylog in Gilmer County?

A. I was down around Cherrylog country in there, five or six miles below Blue Ridge.

Q. 51. I mean in the growing season, have you been down there to observe the conditions?

939 A. Only on the train.

Q. 52. You do not know then what the conditions are then on top of the mountains east of Cherrylog?

A. I have not been in that section since 1911, I do not think.

Q. 53. And what I understand you to say now, is you have not seen any damage in the last few years where you have been in the North Georgia and Mineral Bluff section.

A. I have not seen damage that we would call damage from the Ducktown Copper Company's plant.

Q. 54. You know the effect of that smoke on leaves and the vegetation generally?

A. Well, a few years ago——

Q. 55. Answer the question, do you or not know the general effects on vegetation of this smoke?

A. Yes, sir, it crisps the leaves in some sections of the country.

Q. 56. Now, what does it do in other sections of the country?

A. I claim the Ducktown Copper Company's plant is not doing any damage.

Q. 57. That is just your conclusions?

A. I believe that.

Q. 58. You just believe that?

A. As I stated before I think it — being done by that tall stack.

Q. 59. That is a conclusion you have worked up for yourself?

A. No sir.

Q. 60. How do you get at it?

A. Because the tall—they do not condense all the smoke at the Tennessee Copper Company's plant and they do at Isabella.

940 Q. 61. You do not know anything about that do you?

A. I can tell the difference in the black smoke and yellow smoke—yellow smoke is condensed smoke, and black smoke is not.

Q. 62. Are you an expert chemist, or know anything about the smoke that comes out of these stacks?

A. No, I am not an expert, and do not claim to be.

Q. 63. Do you know anything about the amount of ores that are smelted at the Ducktown Copper Company?

A. I do not.

Q. 64. Do you know how much acid, and how much fumes they turn out?

A. I know they have a large plant there, but do not claim they are doing any damage.

Q. 65. Who does not claim it?

A. I do not claim it.

Q. 66. But you are just one, you draw that conclusion, as I understand, that the Tennessee company have a tall stack, that is the reason you draw that conclusion?

A. I do not draw the conclusion, that is what I believe.

Q. 67. What damage then, as I understand you to say, is being done, you believe the Tennessee Copper Company is doing it, and that is all you know about it?

A. That is what I believe.

Redirect examination.

By W. B. Miller, Esq.:

Q. 1. I will ask you to state whether or not your neighbors and citizens down through there, generally, hold the same belief as you do?

A. Quite a number of my neighbors have the same belief.

Mr. Drake: I except to that as being hearsay and irrelevant.

941 Exception overruled and appeal taken.

A. I own a farm in a mile of where I live, and have a nice garden where I live and I never have asked for damages never have put in any claim for damages and never expect to.

Mr. Drake: We except to all that answer as being irrelevant and offered gratuitiously.

Exception overruled and appeal taken.

Q. 2. Do you know this man, Mr. Byers, who has been a witness?

A. Yes sir.

Q. 3. Do you know what business he is engaged in?

A. He is a truck farmer?

Q. 4. How many other people in his immediate section or your immediate section are en-aged in truck farming?

A. Well, Mr. Wilson lives near him and two others, Mr. Reynolds and Mr. Heaton right above there.

Q. 5. Are they near Copperhill?
A. Yes sir, about twelve miles from Copperhill.
Q. 6. What do they do with *they do with* the truck they grow?
A. They sell it to the Ducktown and Copperhill market. Mr. Reynolds has quite a bank account, he has made from truck farming in the last few years.

Mr. **Drake**: We except to that answer as being irrelevant and immaterial and offered gratuitously by the witness.
Exception overruled and appeal taken.

Q. 7. Do you know anything about the sweet potato crops through your section?
A. It is fairly good potato country.
Q. 8. Did you have any forst through there during May of this year?
A. Yes sir, quite a lot of frost.
Q. 9. What effect did the frost have on apples?
942 A. It damaged the apples and peaches and caused them to fall, and other crops.

Further deponent saith not.

Sworn to before me this 19th day of June, 1914.

—— ——,
Clerk and Master.

The mileage of this witness from his home to the place of taking his deposition and return was a total of 272 miles or, —.

(The noon hour having arrived an adjournment was taken until 1:30 o'clock P. M. of this date, when the further taking of depositions in this cause will be resumed.)
(Pursuant to adjournment the further taking of deposition- in this case was resumed at 1:30 P. M. on this the 19th day of June, 1914, at the same place and in the presence of the same parties as heretofore stated.)

943 R. L. **Turner**, the next witness, having been duly sworn, deposed as follows:

Direct examination.

By W. B. **Miller**, Esq.:

Q. 1. How old are you, Mr. Turner?
A. I am forty four years old.
Q. 2. Where do you live?
A. I live a mile and a quarter east of Mineral Bluff in Fannin County.
Q. 3. How long have you lived there?
A. About nine years.
Q. 4. What business are you in?
A. I am a farmer.

Q. 5. Do you remember whether or not after the tall stack of the Tennessee Copper Company was erected that the fumes came over on you people down there and affected your crops in any way?

A. Just after the stack was first put up, before they put the consumer in there the smoke condenser we were troubled a right smart with smoke, but since that time I cannot apprehend very much damage, occasionally we have some damage, although they use this condenser.

Q. 6. By the condenser you mean the acid plant?

A. Yes sir.

Q. 7. After the tall stack was erected and after the acid plant was put in you were damaged some?

A. Yes sir, we claim it was the smoke that done it.

Q. 8. And the average man down there, if there is anything happens to his corn or apples or any other product, he claims it was the smoke?

A. In a great many instances we do.

Mr. Drake: We object to that as being hearsay and irrelevant.
944
Exception overruled and appeal taken.

Q. 9. What business are you engaged in?

A. Farming.

Q. 10. What crops do you grow?

A. Irish potatoes, sweet potatoes, peas, corn, rye, wheat, cane, sugar cane, beans, cabbage, etc.

Q. 11. How long have you been engaged in farming down there?

A. Nineteen years.

Q. 12. How far east from Copperhill to where you live by the road?

A. It is counted eleven miles and a quarter.

Q. 13. By air line it would be closer of course?

A. Yes sir.

Q. 14. You say, since these acid plants have been put in operation you have not observed any damage of consequence?

A. Not very much, we see some that we claim is that. I cannot say myself that it really is. I do not reckon any other man could come up and say it is, but we claim it is.

Q. 15. Whatever damage is done, they claim smoke does it?

A. Yes sir, they do.

Q. 16. What are the conditions of crops down there now?

A. So far as I have seen they are fair.

17. Have you had an unusual drought in that section?

A. Yes sir. Six weeks dry weather.

Q. 18. Did you have some heavy May frosts?

A. Yes sir, I think we did.

Q. 19. Do they usually affect the fruit crops, these frosts?

A. I suppose so, they kill it, they generally do.

945 Q. 20. Do they attribute that to smoke?

A. I would not be surprised if some do not, I would not say about that, though.

Mr. **Drake**: We except to that answer as a conclusion and immaterial and impertinent testimony.

Exception overruled and appeal taken.

Q. 21. Did you, or any of your neighbors put in a claim against the Tennessee Copper Company?

A. I think all put in damage claims for some amount.

Q. 22. Even you then claim to be damaged?

A. Yes sir.

Q. 23. Did that fellow, J. C. Addington, that raised the banner corn crop and got the State and County premium, put in a claim against the Tennessee Copper Company?

A. How?

Q. 24. I say did that man that raised the banner corn crop and took the premium for the State of Georgia put in a claim against the Tennessee Copper Company, also?

A. I couldn't tell you about —. I never heard anybody say.

Q. 25. You do not know whether he put in a claim or not?

A. No sir, I do not.

Q. 26. Has there been any damage to timber in recent years in your section?

A. Not that I noticed.

Q. 27. You own some timber there, do you not?

A. I have got about two hundred acres in timber, I have got about three hundred acres in all.

946 Cross-examination.

By J. A. **Drake**, Esq.:

Q. 1. I do not understand where you say you live?

A. I live one mile and a quarter east of Mineral Bluff.

Q. 2. You say there has been some damage there in the two or three years, what crops was affected?

A. Well, the apples,—the people claimed damages for them. If I was damaged at all, I was damaged in peas and corn.

Q. 3. Were you damage-?

A. I could not state positively, we had some severe storms, don't you know, and hails, which cut up the stuff considerably, but of course, I could not say which was the damage.

Q. 4. Did you see any smoke over in that section last year?

A. Yes sir we seen some smoke along about the 1st of August.

Q. 5. About the 1st of August?

A. Yes sir, last year.

Q. 6. Sometimes you could, and sometimes you could not, now, about the 1st of August that is about the time your corn was injured, it was in tassel and silk, wasn't it?

A. Yes sir.

Q. 7. I will ask you if that is not the time it hurts corn worse?

A. I suppose so.

Q. 8. You know Mr. Williams, do you not, who is a witness there today?

A. Yes sir, I know him.

Q. 9. Do you know about it coming down on his corn?

A. I do not know about it coming down on his corn.

Q. 10. And burning his tassels and silks black?

947 A. I know there was talk to that effect, I do not know how true that was.

Q. 11. You did not see it?

A. No sir, I did not.

Q. 12. Did you see Mr. Curtis' crop last year when it was damaged by smoke, who was a witness here to-day?

A. I never saw his crop, I do not know how bad it was damaged, it was like the other.

Q. 13. Was there not considerable damage in that neighborhood last year?

A. There was some claims, they generally claim that the smoke damaged it.

Q. 14. You did not see the effects of it?

A. I did not see it.

Q. 15. Why was it, if you were not damaged, that you put in a claim?

A. I put it in, and put it up to the arbitrators, for them to get at.

Q. 16. Why did you put in a claim when you were not damaged by the smoke?

A. I put it up to them like this, we had a chance to be damaged by the hail and by the smoke.

Q. 17. Didn't you have to say that you were damaged by this smoke, or else you would not, as an honest man, have claimed that damage?

A. Certainly, we thought it was that.

Q. 18. You were certain that the smoke damaged it, or you would not have put in this claim?

A. I put it up, as I told you to those arbitrators and let them settle it.

Q. 19. Don't you know that you made the statement to them and told them how that smoke had been down in there?

948 A. They asked me if I had seen smoke in there and I told them I did.

Q. 20. Did you tell them you smelt it in there?

A. No sir, I did not.

Q. 21. Didn't you tell them it had damaged your crops?

A. I told them it was up to them.

Q. 22. Answer my question, did you not tell them that it had damaged your crops?

A. I don't know that they asked me that.

Q. 23. Didn't you accept thirty dollars on that arbitration report?

A. I accepted it.

Q. 24. They come over there and inspected the crop?

A. Yes.

Q. 25. They looked at it?

A. Yes.

Q. 26. How much did you put in your claim for?

A. I put in a claim for I think, for fifty some odd dollars.

Q. 27. You thought you were damaged that much?

A. Of course, I would not have put it in if I did not think it.

Q. 28. How many times have you seen and smelled smoke over in there this year?

A. Well, I do not know just how many times I have smelled it, maybe twice, or three or four times.

Q. 29. Three or four times, did you say?

A. Yes, possibly I have.

Q. 30. Do you remember about when those days were?

A. Well, I seen it down there in June, and on the 2nd day of June, and on the 5th day of June, and on the 7th day of June, and on the 13th day of June, we had some smoke.

Q. 31. Did you see any effects of that smoke on the irish potatoes and other crops?

949 A. We seen some leaves parched, I will state to you. I saw that on the late potatoes. The early planting of potatoes I did not see any on them, but I saw some of it on some of the late planting, and these late plantings are parched, but our early planting was not parched. I have an idea, I think, it was caused by the dry weather.

Q. 32. And they were parched up on those days?

A. You could just barely tell a leaf now and then along in the vines was parched.

Q. 33. That was immediately after the smoke had been in there, that you saw this parched?

A. Yes sir, the smoke had attracted attention, the people. I saw several patches that had been attacked and that is the reason why I think it is mostly dry weather.

Q. 34. Do you know what effect that smoke has on them?

A. Yes sir.

Q. 35. Don't it leave it parched and burnt?

A. Yes sir, it leaves it parched and generally so, especially on ragweeds, all brown, when it comes through the neighborhood.

Q. 36. Mr. Turner, it would be mighty easy for you or for the arbitrators who come and inspect your crops to tell the difference between damage by the dry weather and the damage by smoke, wouldn't it?

A. Not at the season they come, it would not, of course, if they would come at the proper time, they could have maybe.

Q. 37. You saw it at the proper time?

A. I did.

Q. 38. And you saw this smoke?

A. No sir, I did not say that it was smoke, I said the damage was done, and put it up to the arbitrators, and told them that we had a hail storm, two storms along together.

950 Q. 39. Do you mean to say that you put in a claim for smoke damage when you did not know that it was smoke?

A. I told them how it was.

Q. 40. Do you mean to say that you put in a claim for smoke when you do not know whether it was the smoke or not?

A. I told them I put it up to them that we had a chance to be damaged by smoke and also a chance to be damaged by hail, and if you people want to pay, I will fill out the application blanks.

Q. 41. And you claimed you were damaged?

A. Yes sir.

Q. 42. Fifty odd dollars?

A. Yes sir, I put that in my statement.

Redirect examination.

By W. B. **Miller**, Esq.:

Q. 1. These arbitrators were not around until in September and corn gathering time, they did not come to look at it until after frost?

A. I had mine in the crib when they come.

Q. 2. You had your corn in the crib when they come to inspect your crop?

A. Yes, part of it.

Q. 3. And it was on that kind of arbitration that the company was supposed to spend its money?

A. Yes sir, I suppose so.

Q. 4. You say that the talk amongst your neighbors is, that there was some damage done?

A. Yes sir, in that part of the country.

Mr. **Drake**: We except to that question and answer as being irrelevant.

951 Exception overruled and appeal taken.

Q. 5. — one of your neighbors claims to have had damage by smoke, it spreads all around among the balance, don't it?

A. I could not say about that, sometimes the men do, and sometimes they don't.

Q. 6. It is a rather contageous complaint?

A. Yes sir. I should say it was, to tell the truth of it.

Q. 7. And dry weather, as I understand, will occasionally affect sweet potatoes in your section?

A. I never have heard of anybody claiming damage on his sweet potatoes from the fumes.

Q. 8. You have — heard anybody claim that but Mr. Drake——

Mr. **Drake**: You never have heard me make that claim about sweet potatoes.

Q. 9. (Continuing:) —by his questions?

Mr. **Drake**: I except to that question because I have never mentioned sweet potatoes in my examination in this lawsuit at all, and I do not know of them being referred to, I have not heard of it.

Mr. **Miller**: If I misquoted you, Mr. Drake, I beg your pardon.

Q. 10. What kind of potatoes is that you referred to?

A. Irish potatoes.

Q. 11. Is it true that dry weather will affect Irish potatoes as well as anything else?

A. Certainly.

Q. 12. What was the conditions down there with your early planting and your recent planting of Irish potatoes?

952 A. The early ones kind of parched, but you could not tell unless you would go in there and take a close look at them, and the others did.

Q. 13. That parching was drying by this extremely dry weather? and the heat, and the young potatoes that have come up more recently were not affected?

A. I did not see any on them.

Recross-examination.

By J. A. **Drake**, Esq.:

Q. 1. Mr. Turner, you say that your crop was in the crib when these arbitrators came down there?

A. Yes sir.

Q. 2. They *they* had no opportunity to investiga*g*e the crop while it was in the field, at the time the fumes came down on it?

A. Yes sir, they passed several times before I called them.

Q. 3. Did you not just tell them to go down and examine your crop, that it was in the crib?

A. I say that they passed along the public road, but I never made any complaint.

Q. 4. And is it not a fact that all the information or evidence that they had of smoke damage from your crop was what you gave them?

A. They had passed along the road and seen the crop, they passed and might have gone into it, I do not know, I was away from home some, but I noticed they did do some fellows that way.

Q. 5. They, you were mistaken, were you not, when you told Mr. Miller that they never saw your crop at all until it was in the crib?

953 A. No, I never said that they never saw my crop until it was in the crib. I said that they were passing one evening and I asked them to come in, late one evening. They said it would be too late and was not worth while. I gave them all a chance that evening to take a look at it, and they just drove on.

Redirect examination.

By W. B. **Miller**, Esq.:

Q. 1. You say that the arbitrators never even inspected your corn at all?

A. If they looked at it, I do not know it. They passed along, and I asked them to come in and take a look at it, but after a few words they drove—.

Q. 2. They were driving through that country?

A. Yes sir, they were passing the road, they had passed up the road occasionally, and this was——

Q. 3. And this was after your corn was partially gathered?
A. Yes sir.
Q. 4. You invited them to come and look at your crop and they said they would come and do it later, and then sent you in a return that they had allowed you thirty dollars?
A. Yes, sir. They might have looked at it while I way away from home, they had chances to do so in passing.

Further Deponent Saith Not.

Sworn to before me this 18th day of June, 1914.

— —.

954 & 955 M. D. Richards, the next witness called for defendant being first duly sworn, upon direct examination deposed as follows:

Direct examination.

Questions by W. B. Miller:

Q. What is your age, Mr. Richards?
A. Thirty-two.
Q. Where do you live, sir?
A. I live at Copperhill; it is called Copperhill. I live on the Georgia side.
Q. What business are you engaged in?
A. A little grocery stand.
Q. Where did you live in the year 1913?
A. I lived in Fannin County, back up about six miles the other side of Mineral Bluff.
Q. How close did you live to J. C. Addington?
A. About one-half mile.
Q. Is that the man who raised the premium corn crop in Georgia last year?
A. Yes sir, I went to see it.
Q. You had occasion to see his corn crop, did you?
A. Yes sir.
Q. I show you a booklet that is issued by the Morris Fertilizer Company, which is a year book, for the year 1914, and direct your attention to the triplicate cuts one, two and three, appearing on page 13 of that book, and Mr. Addington's letter appearing on page 12, and will ask you if that is the same Mr. Addington to whom you refer?
A. That is the same man.
Q. I will get you to file that year book as exhibit one to your testimony.

956 Mr. Drake: We except to this exhibit for the reason that the photographs therein offered are not identified as being taken from the crop of this man Addington, whose name therein appears.
Exception overruled; appeal taken.

A. I do so.

Q. You lived there by Addington last year?

A. Yes, sir.

Q. Do the photographs shown in that book look like his corn crop while it was growing last season?

A. Yes, sir, it shows him. I think it looked better than the photographs. His corn looked better.

Q. His corn looked better than the photographs?

A. Yes, sir, some, it seems so to me, anyway.

Q. How long have you been living at Copperhill?

A. Well, I began in,—I lived in Copperhill—I have lived in Copperhill ever since about—twelve years ago until last year I moved out and stayed one year in the country.

Q. What did you do last year in the country?

A. I farmed.

Q. What character of crop did you raise last year?

A. I raised a fairly good crop; they said it was the best crop raised on the place.

Q. Well——

Mr. Drake: I except to the answer as being hearsay, and therefore incompetent.

Exception overruled, and appeal taken.

A. Well, I raised a good crop, say a good crop.

Q. How far were you from Copperhill by the road?

A. From Copperhill?

A. Yes?

957 A. I guess, take a direct course, it would be about twelve miles air line.

A. You lived in Fannin County, Georgia?

A. Yes, sir.

Q. What variety of corn did you grow last year, what kind of crop?

A. I growed corn, peas, beans, potatoes and garden truck.

Q. Have you lived in and around the Ducktown section sufficient to know when your crops and vegetables are damaged by sulphur smoke?

A. Yes, sir, I think so.

Q. State whether or not your crop, or your neighbors' crops were damaged in any way by the sulphur fumes last year?

A. I did not consider it so, dry weather damaged it a little, through that section.

Q. I will get you to state if you were back and forth to Copperhill last year through the forests, and along by the fields of your neighbors, and the people that lived between you and Copperhill?

A. Yes, sir.

Q. How did you find the forests and crops in that section, lying between you and Copperhill?

A. I found it reasonably good, like where it was at my place, all the way through.

Q. About the 8th day of this month, or about Monday a week ago, I will get you to state if you know of anything being wrong with the acid plants, or converter, as it is called, of the Tennessee Copper Company, and if so, tell what you know about it.

A. I was down in the plant, and there was some gas turned
loose, and they said it was the acid plant flue that goes to
958 the acid plant, something or another got wrong with it.

Mr. **Drake**: We except to that answer as being hearsay.
Exception overruled and appeal taken.

A. I could not say exactly what was wrong with the acid plant, because I did not go and make any examination.

Q. What were the conditions as to smoke, what happened when it was claimed something got wrong or out of condition with the plant?

A. The smoke come over reasonably strong where I was at, and also where I live up in Hoppertown, and my place of busines down near the river, in Hoppertown.

Q. How far is your place of Business from the plant of the Tennessee Copper Company?

A. Not over a quarter of a mile.

Q. How far is your residence?

A. My residence is about a half mile.

Q. When you found the smoke coming out in your direction, what did you do, did you go up to the plant?

A. Well, I went to the plant both of those days, I went to the plant for this reason, to see a gentlemen that I heard was working there, that was owing me, and I was at the plant both days.

Q. What two days were they?

A. Last Monday and Tuesday a week ago, I do not remember the date, what date that would be, that was the days.

Q. That would be about the 8th and 9th of June. Today is the 19th of June?

A. Yes, sir.

Q. This is Friday, and you went there last Monday?

A. Yes, sir, and Tuesday was a week ago.

Q. What did you find when you went over to the plant of
959 the Tennessee Company, on those days, as to the operations
that were being carried on, and the number of furnaces being
operated?

A. I noticed there were four furnaces being run.

Q. How many of them were being run with green ores?

A. As much as a couple of them were being run with green ores. I noticed green ores going into a couple of the furnaces.

Q. And, have they an appliance there for working up the finer particles of ore they call cindering?

A. Yes, sir, they have a cindering plant there. I worked some time at the plant. It went up the flue, and I do not know what else they put with it, they work the flue dust, and blow it through the stack.

Q. Does that cincering process generate much or little sulphur smoke?

A. Some little bit of it, yes.

Q. Where does that smoke go to, is it conducted into the acid plant, or does it go out the top of the tall stack?

A. No, it goes out the top of the tall stack.

Q. Do you know why that is, why it does not reach the acid plant?

A. There is no way for it to get there.

Q. Does the smoke that is generated in that cindering process enter the smoke stack up higher than the flues that conduct the smoke into the converter or acid plant?

A. This cindering plant?

Q. Yes, tell us why it is that the smoke goes out of the top of the stack?

A. They roast this ore and the flue dust, and the gas goes out just as the smoke out of a high smokestack, there is a sheet iron smokestack that goes up in the air over there, and carries it up in the air.

960 Q. And it is not conducted into the acid plant at all?

A. No, sir, it is never connected with the acid plant.

Q. As I understand, that is separate from the furnace proper?

A. Yes, sir, that is away from the furnace, a separate business.

Q. How long had that cindering plant been in operating a week ago?

A. How long had it been?

Q. Yes. How long had it been continuously in operation?

A. No, I could not answer that, only by hearsay, I do not know anything about that, because I did not pay any attention to it.

Q. Did they, or not, shut down that cindering plant shortly after you were there?

A. Yes, sir.

Q. Do you know whether or not a part of the furnaces was banked also, shortly after you were there?

A. They claimed so, I do not know, I cannot answer if that was so, but they claim it was.

Q. After they stopped the cindering plant, and claimed to have banked a part of the furnaces, then what were the smoke conditions, did they get better, or not?

A. After they ceased the cindering and banked part of the furnaces, it was better. No gases going out that you could see, only Monday and Tuesday, those two days.

Cross-examination.

Questions by J. A. Drake:

961 Q. How old are you?

A. Thirty-two years old.

Q. And you live right there at Copperhill?

A. Yes sir, I live right there at Copperhill, all except until last year, when I moved out last year.

Q. For how long have you been living there?

A. Well, sir, I have been there, I was away a right smart, before

I married, I was boarding there, but I have lived right straight along after I married, I went there and got my wife.

Q. Have you worked there for these companies?

A. I never struck a lick for the Ducktown Copper Company in my life. I have worked for the Tennessee Copper Company, I guess, all together I was there about ten years, commencing when they first commenced roasting ores, and stayed until they quit, about three years ago.

Q. In what capacity did you work?

A. The first work I done there was driving a team before the furnace was built there, they were building, you know, constructing work, and such as that. I went driving a team, and from that I went to the roast yard when they began to haul wood to roast with, and worked at that until they ceased the roast pile, and then went to contract work with them, and from that I went to feeding the furnaces, pouring ore into the furnaces, and stayed on that some four or five years, I was on the feed floor, feeding the furnaces.

Q. You have never worked for the Ducktown Copper Company any?

A. No, sir, I never worked a day.

Q. You do not know their methods and practice of work there?

A. No, sir, not much about them at all.

962 Q. I will ask you if you can not see smoke boiling out of the top of the stack there, Mr. Richards, at all times?

A. At all times, over at the Ducktown Copper Company's plant?

A. Yes, you can see smoke boiling out now, of course, yes, sir, condensed smoke, that big stack of the Tennessee Copper Company, it comes out like that.

Q. And then does it not come out also, the fumes, from the stack, and the gas all the time?

A. Over at the Ducktown Copper Company's plant?

Q. Yes.

A. I never saw it there much, that is, I am not much acquainted around there. I never did see any smoke coming from over that way. I have been around all those hills, but I never paid much attention to the situation and smokestack they have there, and I could not answer and tell you what kind of smoke stack they have.

Q. Then I understand you to say that if they are turning out smoke and gas over there, you do not know it, that is right?

A. No, sir, I do not know it, I cannot tell the effect of it.

Q. You do not know whether they are or not, you cannot see it?

A. No, sir.

Q. You have been over to see what kind of smoke stacks they have?

A. I have been around there a good many times, several times, but could not answer as to what kund of smoke stacks they have.

Q. Don't you also know that these companies run continuously, and never shut down unless they have a breakdown?

963 A. Yes, sir, I think so.

Q. Did you see any smoke damage over in Georgia last year?

A. Well, I could not say that I did. We had dry weather up there, and it seemed like everything burned up, but I think, well, it was the Ducktown Smoke doing it. I remember living over there in Cleveland in 1913, I have seen the garden truck and things in worse shape down in Cleveland than up there, so I decided we were not having much Ducktown smoke.

Q. I will ask you if the smoke did not come over in to Georgia last year, and you could see it and also smell it?

A. I could not say that, I could not say that I did. You look up into the air and see the blue looking smoke, and a lot of people might say it was smoke from Ducktown.

Q. Please answer my question, Mr. Richards, and don't be speculating about what we might do. State whether or not you saw that blue smoke in Georgia last year, and whether or not you smelled any of it over there?

A. No, sir, I cannot say I did.

Q. Can you say that you did not smell it?

A. No, if I smelled the Ducktown smoke around where I was living and up in there, I cannot remember it.

Q. I believe you say you were living up close to this man Addington?

A. Yes, sir.

Q. That had the fine corn last year?

A. Yes, sir.

Q. How far is that from the Ducktown Copper Company?

A. I would take it to be on an air-line course, about twelve

964 miles; I do not know. I would take it to be that far.

Q. Would you swear there was no damage done in North Georgia last year, or year before last?

A. I will swear I never seen none to know.

Q. Well, that does not answer my question, does it, Mr. Richards?

A. Oh, well, I do not know, I could not say for sure. I was not all over North Georgia, but I did — any.

Q. You have not been over in that farming section this year, as you are in the mercantile business this year in town?

A. I was up there awhile, yes, a month, or somewheres about a month ago. I was up to see my father.

Q. I mean you have not been there to spend any length of time to observe conditions this year?

A. No, sir, I only passed up there on to my father's farm up in there. I was up in there for a couple of, or three days, I forget the amount, a couple or three days.

Q. That is all you have been up in that section?

A. Yes, sir, that is all I have been up in that section this year.

Q. That is all?

A. Yes, sir.

Redirect examination.

Questions by W. B. **Miller**:

Q. If there is any damage done in the fields and forests, could a man find them in three days' travel around among them?
A. I do not think so.

Q. Don't you think you could find it in three days around
965 there?

A. No, sir.

Q. How far does your father live from Ducktown?
A. On an air line it is about twelve miles where I live, and he lives about a mile and a half beyond where I live, or about thirteen miles on an air line course.
Q. In going up there and returning, did you go through the country?
A. Yes, sir.
Q. Did you observe the crops and forest as you passed back and forth, and the orchards?
A. Yes, sir.
Q. Your father is a farmer?
A. Yes, sir.
Q. How many acres of land does he own up there?
A. I think he counts them about thirty acres of level bottom land. I could not tell you the amount of timber lands that he owns.
Q. Is your father engaged in farming?
A. Yes, sir.

Further deponent saith not.

—— ——.

Sworn to before me, this — day of June, 1914.

—— ——.

The total distance covered by this witness from his home to the place of giving deposition was two hundred and thirty-six miles, one hundred and eighteen miles in each direction.

966–969 W. G. **Payne**, the next witness, being first duly sworn upon direct examination deposed as follows:

Direct examination.

Questions by W. B. **Miller**:

Q. Where do you live, sir?
A. I live in Cherokee County, North Carolina.
Q. What portion of the County?
A. It is in the Southwest corner of the State.
Q. How long have you lived in Cherokee County?
A. Well, sir, I have lived there pretty much ever since I was four years old.
Q. Have you been Sheriff of that County?
A. Yes, sir.

Q. Have you represented the County in the Legislature of North Carolina?

A. Yes, sir.

Q. How long have you been acquainted with the section known as the Ducktown basin, where the Tennessee and Ducktown Company are now smelting copper ores?

A. Well, sir, ever since I can recollect, since a boy.

Q. Do you own any bodies of land in Cherokee County; if so, how much?

A. I own something over two thousand acres.

Q. How close do your lands extend to the plants of the Ducktown Copper Company?

A. There is one edge of the corner that is within three or four miles of Ducktown.

Q. Do you grow any crops on that land?

A. Yes, sir.

Q. What kind of crops?

A. Wheat, corn, rye, oats, potatoes, fruit and such other stuff.

970 Q. Have you any woodlands?

A. Yes, sir, I have several hundred acres of woodland.

Q. How long have you owned these farms and that immense acreage of land in North Carolina, Esquire?

A. Most of it I have owned from twenty to forty years.

Q. Have you been damaged in your crops or timber by the operation of either of the copper companies?

A. No, sir, I think not.

Q. You have not filed any claim against either of them?

A. No, sir, I think not.

A. You have not filed any claim against either of them?

A. No, sir.

Q. I will get you to state if you have been down in the North Georgia section of country, Esquire, that territory that lies South of Copperhill, and to the southeast and southwest, particularly in Fannin County?

A. Yes, sir, I have been in that portion of the country two or three trips.

Q. Probably how many days have you spent through there, on a trip?

A. Well, I should say I was out there on one trip, on a camp out there, on Frog Mountain, six, seven or eight days, I believe it was, and then I made another trip through there in 1911, I think it was, we started out and went through that section, and around up above Morgantown, and back to the North Carolina line over South of me. I forget how many days we stayed over in there that trip, and went on one or two other trips that I have been over there.

Q. Were all of these trips made within the last three years, Esquire?

A. Yes, sir.

971 Q. Were you and your party provided with horses on these trips?

A. Sir?

Q. Were you and your party provided with horses on these trips?

A. I was not, I had to furnish my own horse.

Q. I mean to say, you rode?

A. Yes, sir.

Q. Now, did you ride all the time, or what, and if not, why not?

A. Sir?

Q. Did you ride on horseback all day while making the trip?

A. No, sir, a part of the time it was so rough we could not ride, and part of the time we taken out afoot and left the horses.

Q. When you went out on these trips, were you out to ascertain the condition of crops and timber throughout that North Georgia Section?

A. Yes, that is what we were sent there for.

Q. Did you have any other object in view except to honestly ascertain, and truthfully report the facts?

A. No, sir, none in the world.

Q. Did you have any interest in the result of your report?

A. None whatever.

Q. Have you got any interest in the Ducktown Company?

A. None at all.

Q. Was Mr. Sherman Reese, who is here present today, with you on those trips?

A. Yes, sir.

972 Q. What did you find to be the condition of the crops, the growing crops, orchards and timber on these various trips in 1911, 1912 and 1913?

A. I found them as good as in my section, according to the land. Of course, some lands, have better crops than others and some have not. Then, there is owing to the land and weather, you can not average up every year, but where there were crops they looked about as good as mine. I saw no sign of the Ducktown smoke on them.

Q. What was the condition of the orchards, the apples?

A. They were good.

Q. Were you a member of the party that was camped awhile on Jacks River?

A. Yes, sir.

Q. At that time, I believe, your party was looking over the Vestal and — lands?

A. Yes, sir.

Q. State whether or not you were there on that range of mountains and hills lying south of the Tennessee line, and between there and Ellijay and Blue Ridge?

A. Yes, sir, we was through a good portion of those mountains.

Q. Were you on the sides of those mountains nearest the Ducktown basin?

A. Yes, sir.

Q. Were you on the places that were most favorable and exposed for receiving smoke, if any had drifted down that way?

A. Yes, we were on Tumlin Creek, and that side of the mountain they said would have been most liable to have been hurt by smoke, if there had been smoke in there.

Q. Did you see any dead timber down through that section?

A. Yes, sir, we found more or less dead timber.

973 Q. Were you ever in any forest, Esquire, where there was not a percentage of dead timber?

A. Yes, sir, I have been in a good many forests. I have never been in one yet that I could not find dead timber.

Q. Have you, or not, visited the forests of the country in the Great Northwest?

A. Yes, sir, I have made several trips west, hunted in the Rocky Mountains, and in the mountains of Arkansas and Missouri, and also found some dead timber in all the original forests I have been in, east or west. I have been in a good many east of here.

Q. Have you been through the North Carolina section?

A. Yes, sir, and Virginia, and Kentucky, and South Carolina.

Q. How did the percentage of dead timber you found in that North Georgia section that lies south and southeasterly and southwesterly from Copperhill, how does the percentage of dead timber compare with what you would find in the Northwest, or North Carolina, Kentucky, or Virginia forests?

A. With the exception of the forest-fires in Cobb Mountain, it is as green a section as I have been in I think, in twenty years. Of course, we have got to have some dead timber. When they get out the logs, the loggers will leave the brush piled up against the trees and then when a fire comes along, it will kill a good deal of timber over in there.

Q. Have you ever followed saw-logging or milling, yourself, or had it done, so as to observe the effect on the timber where you had a saw-mill set?

A. Yes, sir, I have had a right smart of lumber cut, and have had some experience with timber.

Q. When you set a saw-mill out in the woods, and cut down trees, what is the usual appearance of the timber around the saw-mill site?

974 A. Well, more or less will die—a good deal killed by fire.

Mr. Drake: We except to that as being irrelevant. Exception overruled; appeal taken.

Q. If you cut a pine into wood, what happens to the other pines near it as a general rule?

A. It will start the worms and they kill out the trees around it as far as they can in that season.

Q. Did you, or not, find numerous evidences of saw-mill sites in this southeast and southwesterly direction from Copperhill?

A. I found a great many saw-mill sets.

Q. What did they do with the tree lapps when they cut down the trees for milling?

A. Left them in the woods where they fell.

Q. Then what happened?

A. They were burned up by forest fires.

Q. Then what effect did that have on standing timber?

A. Well, where it fell against standing trees, in many instances it would kill those wherever it would burn.

Mr. **Drake**: We except to that evidence as being irrelevant.

Q. Did you find evidences of where fires had burned out and scalded the trunks of trees near saw-mill sites?

A. Yes sir.

Q. How high did you discover the evidences of flames from forest fires?

A. I saw some trees that were burned fifty and seventy-five feet on the trees, some of them burned to the top.

Q. How frequent are those forest fires through that section?

A. Most every Spring there is more or less fire through the mountains.

975 Cross-examination.

Questions by J. A. **Drake**:

Q. Esquire, how many times have you been a witness for this Company?

A. Sir?

Q. How many times have you been a witness for this Company?

A. I could not state, I have not kept them, I have been a witness for them ever since I have been inspecting for them, it is, I think I said, since 1910 when I done the first work for them.

Q. How many trips have you made for them as an expert to examine fires?

A. Well, I have never made any trips as an expert.

Q. Well, haven't you—if you do not know what causes timber deaths, how do you explain what killed that timber down there?

A. I stated to you what I seen, the most is killed by fire. I can tell where a fire has burned and killed a tree, I think.

Q. You can do that, can you?

A. Yes.

Q. Did you see any trees down there that were killed by anything else besides fire?

A. Yes, sir, I seen some dead trees there where there was not any sign of fire, I think, just as I have seen in other forests I have seen.

Q. Do you mean to be understood that the forests just south of Ducktown, in the State of Tennessee, and Southeast of there for several miles are similar to other forests that you have visited in other portions of the Country, in Arkansas, Missouri and the West?

976 A. Yes, sir, aside from the old saw-mill sets where the timber has been cut and the fire got out and killed it. I did not see any more dead timber there, or per cent of it than in other countries, that is my observation.

Q. Which way is your land that you speak of in North Carolina from the Ducktown Copper Company's plant?

A. It is pretty much east, northeast a little.

Q. A little northeast?

A. Yes, sir.

Q. And the edge of it, you say, I believe, comes as close as four or five miles of it?

A. Three or four miles.

Q. Three or four miles?

A. Yes.

Q. How far east, then, is it to the far edge of your land?

A. It is about six, seven, or I suppose about eight miles from the Isabella plant, and I own another tract of two thousand acres near Ducktown, on the headwaters of Shoal Creek, is the nearest land of mine from that to the Ducktown Copper Company's plant.

Q. At whose instance did you make all these trips of inspection that you speak of?

A. How is that?

Q. For whom did you make these trips of inspection down into Georgia?

A. The D. S. C. & I. Company.

Q. And you have been at that work, I believe, since 1910, each year?

A. Yes, sir. The first work I done was in Tennessee. We were on the Whitmore and Stephens property, I believe, down in the other Mountain. 1911 was the first trip I made over on Frog Mountain.

977 Q. When was the first trip you made into Georgia for this Company?

A. 1911, I believe.

Q. When was the next trip?

A. I think the next trip was in October, I believe.

Q. The next October?

A. Yes.

Q. Is that the trip on which you went to Ellijay?

A. No sir, I did not go to Ellijay, I did not go that far down. I went down towards Sherry Log, and through there.

Q. You were with the same party, that was the same trip that some of them did go to Ellijay?

A. They went down the*ir* a few days afterwards. I did not go with them.

Q. What I mean, that is the same trip you were at Cherry Log?

A. Yes, sir, that was the same trip.

Q. At the time you went down there, I will ask you if the frost had not fallen?

A. No, sir, there had not been any frost that I know of at that time.

Q. What time in October was that?

A. I think we started out about the 20th, or somewhere along there.

Q. How long were you on the trip?

A. It was a seven or eight day trip.

Q. I will ask you if you were not over there in November?

A. Yes, I think we went back there once, about in November.

Q. Had frost fallen then?

A. Yes, I think there had been some frost before I went over there on that trip.

978 Q. And on all these trips you made into Georgia, you never did see any signs of smoke?

A. No, I never saw any, or anything I thought was smoke signs.

Q. Do you know smoke signs when you see them?

A. I think I can tell it. Sometimes there are other kinds of smoke.

Q. Did you explain to the citizens of Georgia when you were down there making that tour, that you were viewing out a way for a new railroad?

A. No, sir.

Q. Did any of your party make that claim?

A. I never heard of it.

Q. I will ask you if you did not conceal from the citizens of Georgia where you went your purpose?

A. No, sir.

Q. And didn't your party conceal it from the citizens?

A. No, sir.

Q. What work you were on?

A. I never heard any such a thing, I never heard it. I know I never did it.

Q. Did you go to any of the citizens and tell them what you were doing and ask them to point out smoke damage?

A. No, sir, I never did. They knew what we were in there for.

Q. How do you know that they knew it, if you did not tell them? If you did not go to them and ask them?

A. We stopped for dinner on Stanley Creek, and it was at one of the Stanley's and they are the only ones that I remember telling and I asked Mrs. Stanley if she ever had any vegetables hurt in her garden. She said everything was nice, she had everything nice to eat, and she said she never did.

Q. That was where?

A. Over on the waters of Stanley Creek, after we crossed
979 Blue Ridge, and turned towards the Tococoa River.

Q. After you crossed the Blue Ridge?

A. We had been on Jacks River.

Q. That was how far from these plans?

A. Why, southeast, I suppose, or south.

Q. It is a very mountainous country back through there?

A. Yes, sir, that is mountainous, and——

Q. And the valley is narrow across from east to west isn't it? Or northeast to south-west, much more than it is from northwest to southeast in that basin, it is much narrower across that way than down the other way, isn't it?

A. No, I think not.

Q. It is longer than from East to West, the basin is?

A. You mean the Ducktown basin?

Q. Yes?

A. Well, I do not know, I never measured across it either way. I do not think there is very much difference, it is in a circle, is my observation.

Q. You have lived there all your life, and have seen all of that, all your life, and the best you can observe is, that it is about round?

A. Yes, sir, it is very much rounded. Of course, the mountains cut in in some places.

Q. And there is not any break or opening in the mountains down into the State of Georgia, southeast from these plants, leading in from Blue Ridge and through the gap?

A. There is through Blue Ridge gap; that is the last opening around there.

Q. Is there not a general depression down that way, and does not the mountain tower up on each side?

A. No, sir, I think not.

Q. Isn't *is* a fact that these northwest winds, blowing that way, forces all the fumes from these smoke stacks and drives it
980 down into the State of Georgia that way?

A. These northwest winds would drive the smoke from the Tennessee Copper Company plants further towards Frog Mountain.

Q. That is not the question I asked you, Mr. Payne. If the wind were blowing towards the southwest, wouldn't it drive the smoke fumes down through the valley to Blue Ridge?

A. From the southwest?

Q. Blowing from the Tococoa river, down towards the southeast, sorter up?

A. No, sir, that would not drive it in that direction at all, it would drive it southeast.

Q. Is not that what I asked, if the wind from the northwest, blowing towards the southeast, would not that blow it in a general direction up the River?

A. Yes, sir, right up the Ocoee River.

Q. And if these winds are the prevailing winds, then it would drive the air currents over towards this woman's house to where you said you stopped, as she lived in a southwest direction from there.

A. She lived a little bit southwest from Blue Ridge, I suppose, I do not know exactly what direction it would be. It would be very much southwest from Blue Ridge to Stanley Creek.

Q. Didn't you just state awhile ago, that that Frog Mountain, where you camped, and it is a fact, is it not, over there, making this inspection where this woman you were speaking about lived, was southwest from the Copper Company's plant?

A. Yes, sir, I said southwest, but not up the Tococoa River, it would be across the hills.

Q. In another direction?

A. Across the Blue Ridge.

Q. It would be in an opposite direction from there?

A. It would be in the line of that a little.

981 Q. And if the wind blows up the Tococoa River and in a southeast direction, they would not then be blowing towards Frog Mountain, and where they camped, would they?

A. No, sir.

Q. You say you have never seen any timber over there that you thought was killed by smoke?

A. No, sir.

Q. Have you ever seen any timber that the leaves were scorched by smoke?

A. No, sir, I never found any scorched leaves after we got a few miles across the river from the plant.

Q. Can you tell what killed the timber where you have been?

A. No, sir, as I told you, I can tell where it has been killed by forest fires, or burned and killed.

Q. Can you tell what killed any tree after it has been dead three, or four or five weeks?

A. No, sir, if there is no sign of anything that I can see I could not tell. And nobody else can tell.

Q. Then, you do not know what killed the timber in the North Georgia territory?

A. I told you what I saw most was killed by forest fires.

Q. You said awhile ago there was some killed over there, but you did not know what killed that.

A. No, sir, I do not know what caused it to die, only the natural causes. I told you I had never been in any original forests that I had not seen dead timber.

Q. Yet you do not know what caused the timber to die except forest fires. How do you know what the natural causes are?

A. As I told you, I am not an expert, I do not propose to undertake to tell something that I cannot, but I know they did
982 die of natural causes.

Q. You do not think that the scorching of the leaves by smoke would hurt them anyway?

A. No, sir, they will come out in the Spring. It will take a number of years of scorching of the leaves to kill the trees, is my observation.

Q. Do you not know as a matter of fact that the scorching and burning of the leaves by these fumes would help the tree?

A. Help it?

Q. Yes, be beneficial to it?

A. No, sir, I do not think so.

Q. I will ask you if the fumes on striking a tree, hit the leaves and turn them brown, and then they fall off in August, two months before the natural time for frost to come and kill them, do you think that would hurt the tree?

A. Not unless it strikes it the next year, and the year after that, and for two or three years. I do not think it would.

Q. You do not think so?

Mr. Miller: Let him answer.

A. (continuing:) I said it takes, steady application of that smoke every year, for three or four years to kill it. Scorching it once a year won't do it, unless it is repeated.

Q. Now, don't you know that if three or four years of that smoke would kill a tree, one year would injure it seriously? Answer so the stenographer can hear you.

A. How is that?

Q. What do you answer to that question?

A. I never heard you. No, sir, I do not think it would injure it seriously. I know from experience. I have a section of the country
close to me that one year after they put up that high stack
983 the smoke come through and scorched the leaves, and they
fell off the first of July, and last of August, and they said it was dead, I said, "No," it was not, and the next year it all grew out, and is as green today as any part of the country, that is from my own experience.

Q. Then, it is your conclusion, that one or two years when it strikes it, it will not kill the tree?

A. I said it takes three or four year- of mighty strong applications of it.

Q. How many years do you think it would take to injure Irish potatoes?

A. I suppose one application would be enough.

Q. And a growing corn crop?

A. I suppose if it is strong enough it would kill it in one year. I have never seen any. I never saw any signs of mine with smoke on.

Q. Did you, in all of your trips to North Georgia, ever see a single crop of Irish potatoes, or *oaths,* or corn, or rye, or wheat, or apples, damaged by smoke?

A. I never saw any I considered smoke had hurt.

Q. I will ask you if you ever saw the corn crop of J. Y. Allen, in the year 1912?

A. Yes, sir, in that year I went and examined a crop of corn they said belonged to J. Y. Allen.

Q. Well, what was the condition of that corn?

A. It was about as fine corn as I ever seen in that country.

Q. How much would it make per acre?

A. I think it would have made about sixty to seventy five bushels per acre.

Q. And that corn was not damaged by smoke, was it?

A. I think not.

Q. What month did you see it in?

A. That was the last of October, to the best of my re-
984 membrance.

Q. I will ask you if that was not the best corn crop you saw on that whole trip?

A. Well, taking the whole field, I think it was as good as the rest. There was a crop, a small acreage, that was good. I think over close to Blue Ridge there.

Q. Who had any better corn than that in that neighborhood?

A. I do not remember now, I did not take notice of any particular crops, take the names of the people, but I saw the different fields of corn that was good. I do not think I saw any fields that would average with that one of Mr. Allen.

Q. I will ask you if you did not swear in the Shippen Bros.' Company case that that was the best corn crop you saw that year?

A. I don't remember. I say yet I think it was the best average field of corn I saw.

Redirect examination.

Questions by W. B. **Miller**:

Q. Was that the same J. Y. Allen that wanted to pick a fuss with Mr. Reese when he went to get samples of corn for the case in the United States District Court?

Mr. **Drake**: We except to that for the reason that it is hearsay, and the witness has not stated that he raised any row with Mr. Reese.

Exception overruled; appeal taken.

A. I think so.

Q. Do you know where what is known as the John Quinn orchard is, that lies out east of the Isabella furnace?

A. No, sir, I don't remember that I ever saw that.

Further deponent saith not.

Sworn to before me this 19th day of June A. D. 1914.

——— ———,
Clerk and Master.

985 The distance traveled by this witness from his home to the place of giving deposition is total of 244 miles, 122 miles each way.

986 State of Tennessee,
County of Hamilton:

I, Chas. M. Fain, Notary Public in and for said state and county, and stenographer, certify that the foregoing transcript is a true and correct, and honest transcript to the best of my skill and ability of my notes taken in shorthand.

This June 28th, 1914.

CHAS. M. FAIN. [SEAL.]

987

No. 1.

THE STATE OF GEORGIA, Pl't'f,
vs.
THE TENNESSEE COPPER COMPANY and THE DUCKTOWN SULPHUR, COPPER AND IRON COMPANY, L'T'D, D'f'ts.

Original. In Equity.

The Depositions of W. F. Naughan and Others, Taken on Behalf of the Defendants, the Ducktown Sulphur, Copper and Iron Company, L't'd, Commencing Thursday, June 18th, 1914, in the City of Chattanooga, Tennessee, Pursuant to a Notice Hereto Attached, in the Presence of J. A. Drake and Lamar Hill, Representing the State of Georgia, and J. A. Fowler, George G. Hyatt and W. B. Miller, Esqs., Representing the defendants.

988 L. A. HUGHES, the next witness called, be- first duly sworn, upon direct examination deposed as follows:

Direct examination.

Questions by W. B. MILLER:

Q. What aged man are you, sir?
A. Sixty-four, going on sixty-five.
Q. What county in Tennessee do you live?
A. Claiborne.
Q. What relation, if any, sre you to Judge Hughes, who is a member of the Court of Civil Appeals of Tennessee.
A. A brother.

Mr. DRAKE: We except to that as being irrelevant and incompetent.

Q. How long have you been engaged in the lumber business?
A. I have been engaged in the lumber business over thirty years.
Q. State whether or not you have made a specialty of investigating and buying timber for timber companies and lumber companies during the last twenty years?
A. I have.
Q. Well, how long do you say?
A. I said for thirty years, and a little over.
Q. That has been your business?
989 A. Yes, sir.
Q. Have you purchased timber for many or few timber and lumber companies?
A. I have purchased a good deal of timber for different parties. Snodgrass, up here at Philadelphia, the veneer people, and some others.
Q. Timber on the stump?

A. On the stump and in the log, both.

Q. What sized *stacts* have you inspected and made purchases of for the various lumber companies?

Mr. DRAKE: We except to that question as being irrelevant. Exception overruled, appeal taken.

A. Well, I went over some pretty big boundaries, I think they said there is something like sixty thousand acres there in one boundary.

Q. Where was that?

A. That is up on the head of Little River.

Q. In what State?

A. Tennessee.

Q. What County?

A. I reckon it was in Sevier County, it might not have all been in Sevier.

Q. How large are some of the other tracts, just a few that you have purchased and inspected?

A. Ten and eleven thousand acres in one. I never purchased one that big, but I have looked over them.

Q. You have made reports on them?

A. Oh, yes.

Q. State whether or not you have ever been engaged in farming, or had it carried on?

990 A. Sir?

Q. Are you a farmer?

A. I have not farmed much myself.

Q. Have you had farming carried on?

A. Yes, sir.

Q. What size farm do you own?

A. Between three and four hundred acres.

Q. I will get you to state whether or not, at the instance of the Tennessee Copper Company, you went into the section of Georgia, that is, in Fannin County, that lies south, southeast and southwest from Copper Hill?

A. Yes, sir, along in there.

Q. During what years were you down in that section?

A. It was in 1912.

Q. Looking at the timber, crops and orchards?

A. Yes, sir.

Q. What did you find as to the condition of the orchards and fruits and gardens and the fields and forests down through there?

A. It all looked fine, the fruit crops, gardens and everything.

Q. That was after you left Copperhill, for about a mile or so?

A. Yes, sir.

Q. Did you go down from Copperhill through the mountains and ride through the hills and timber down as far as Jacks River?

A. Yes, sir.

Q. Were you on Fighting Town Creek?

991 A. Yes, sir.

Q. Were you on Tumlin Creek?

A. Yes, sir.

Q. Were you through the Cowpen Mountains and the other tier of Mountains that extend through that section?

A. Yes, sir.

Q. Were you on the sides and faces of those mountains that were toward Copperhill, so that if the smoke had been drifting down that way the timber would have shown it?

A. Yes, sir.

Mr. DRAKE: We except to the form of that question, because it calls for a conclusion.

Exception overruled, appeal prayed.

Q. What did you find as to the death rate of timber down through there, did you find much dead timber?

A. Yes, sir, I found some.

Q. How did it compare with dead timber that you found in other sections of forests in country entirely away from there?

A. I saw some places away from there that were worse than that was, and some places I saw that were worse than that.

Q. Did you, or not, find any evidences of forest fires where you found most of the dead timber in this North Georgia Section?

A. Yes, sir, most of it was pine and chestnut.

Q. What has been your observation as to the death rate of chestnut and chestnut oak through Eastern Tennessee and west-
992 ern North Carolina during the last few years.

Q. It is pretty bad.

Q. Do you know whether or not it is called chestnut sly, has killed it out very extensively?

A. Something life that has killed it, worms and bores, a great deal of timber has been killed by bores.

Q. Did you see evidence of forest fires, and sawmill sites through that North Georgia section?

A. Yes, sir.

Q. Do the forest fires damage the growing timber any?

A. Yes, sir, all fires do damage it.

Q. How high up the trunks of trees did you see the fire scalds on the standing, growing timber?

A. On the growing timber, where it was green when the fire was there, it had not gone but about ten or twelve feet, but on dead timber, it had gone all the way up, and where it had been green when the fire was there, it had not gone so high.

Q. What is your experience as to the effect of forest fires on growing timber, particularly young timber?

A. It will kill it out, it does not take a big fire to kill timber, just fire enough to sour the sap in the timber, will kill it, quicker than if you were to build a big brush heap around it.

Q. Mr. Hughes, did you have any interest in the outcome of your investigation down there, interested in any manner in the Ducktown Copper Company?

A. No, sir.

993 Q. I will get you to state whether you had any object except to honestly ascertain and truthfully report the facts?

A. That was all I had.

Cross-examination.

Questions by J. A. **Drake**:

Q. How many trips of inspection have you made for the Ducktown Copper Company?

A. Well, I would have to count awhile. I have made some six ir seven.

Q. When did you make the first one?

A. The first one was in 1912.

Q. Where did you go on that trip?

A. I went to Jacks River, and in that country.

Q. What direction is that from Ducktown, the Ducktown Copper Company?

A. Why, I do not know the distance, I am not very well acquainted with the country, but it must have been some fifteen or twenty miles.

Q. What direction is that from Ducktown, the Ducktown Copper Company?

A. Kinder south, in that direction.

Q. How long did you stay on that trip?

A. Well, ten or twelve days.

Q. What time of the year was it?

A. It was the Fall of the year.

Q. What month?

A. October, I might have been there about the same time in September and stayed until October.

994 Q. How is that?

A. I went there in September, about the 26th of September, and stayed until October.

Q. Then, when was the next trip you made?

A. It was in October.

Q. Of that same year?

A. Yes, sir.

Q. What time in October?

A. About the Seventh.

Q. How long did you stay on that trip?

A. I could not tell that, sir, without counting how many days, some eight or ten days then.

Q. Where did you go on that trip?

A. I went across the other way, kinder of around in what is called Fightingtown Creek, you are speaking about, and back down to Blue Ridge and through that part of the country.

Q. Did you go to Ellijay on that trip?

A. No, sir, not on that trip.

Q. When did you make your next trip?

A. The first of November.

Q. Of that same year?

A. Yes, sir.

Q. Where did you go on that trip?

A. I went down to Ellijay and t*rh*ough that part of the country then.

Q. And at that time, I will ask you if there had been any frost?

995 A. Yes, there had been a frost while we were on Jacks River the first trip.

Q. The first trip?

A. Yes, sir.

Q. Did you see much signs of it through the woods and on the tree tops?

A. It was not heavy enough to make much of a show, to show much sign.

Q. Did it kill some of the leaves, or not; did it not parch them up?

A. Some, not much; it was not a very heavy frost.

Q. When did you make your next trip?

A. Well, it was, I made the next trip, it was about the same time, I might have made one between that time, I only went home a day or so, and then went back.

Q. You made about four trips in 1912, did you?

A. Yes, sir.

Q. When did you make your next trip?

A. I made one the last of last January.

Q. You mean January, 1914?

A. Yes, sir.

Q. To inspect growing vegetation?

A. To inspect timber; there was not much growing vegetation.

Q. When did you make your last trip?

A. That was the last trip I made.

Q. Didn't you make any trips in 1913?

A. I can tell by looking at my book.

996 Q. Well, get your book, if you have it, and see whether or not you did. I want to know about it.

(Witness examines memorandum book).

A. I don't think I did.

Q. You mean by that that you do not think you made any trips last year?

A. No, not in 1913.

Q. Can you tell the difference between smoke damage and frost on vegetation?

A. Yes, anybody ought to tell that.

Q. What is the appearance of effect, then, of this sulphur smoke on leaves and growing vegetation, describe it, please?

A. I do not know so much about the smoke, the frost will cook them up, as soon as the sun shines on them, they will die.

Q. Have you—If you do not know the effect of smoke, how do you know the effect of frost?

A. It takes them longer to kill.

Q. You just said you did not know what the effect of smoke was.

A. I am not so, well acquainted with it as I am with frost.

Q. That time you were at Ellijay, there had been a couple of frosts that year?

A. Yes, sir, some frost.

Q. You never did, then, make any inspection down there in the growing months of July and August, when the stuff is growing, and everything is full of leaf?

A. No, sir, not any.

Q. At the time you were down there in Georgia, around Ellijay, all through there, the leaves then were brown and crisped up by the frost, as you just have described the way it does it?

997 A. It gets red, and then turns brown, and finally falls off the trees, and some fall off, you can tell when the leaves get ripe and red and fall.

Q. If there had been smoke injury at that time, you could not have told it anyway?

A. Yes, I think we could.

Q. How could you have told it if the frost had already crisped the leaves and they were falling in the condition you have described?

A. Frost does not crisp the leaves. It is that way when the smoke hits it, when the frost kills it, they are about ready to fall, and the frost does not hurt them.

Q. The leaves had fallen to the ground at that time, a great many of them had?

A. Yes, sir.

Q. How did you know what put them on the ground?

A. At that time of the year, when they were ripe and dropped of- ——

Q. Then, you were never there at the time of the year when they were growing, to see if there was any damage?

A. I could not tell in September, when I went there, but some garden stuff, and such as that, I did not see any smoke on it.

Q. You were out on Frog Mountain, in that forest of the Vestals, where there was not anybody living, wasn't you?

A. I was out in there, but some people are living there.

Q. A mighty few?

A. Several people are living there, I passed their houses.

998 Q. That part of the trip was southwest from these plants, wasn't it?

A. Sir?

Q. That part of the trip was southwest from these plants wasn't it?

A. Sorter that way, I am not so well acquainted with the country, to tell exactly the course.

Redirect examination.

Questions by W. B. MILLER:

Q. Mr. Hughes, if there had been any timber killed over there, you could have seen that?

A. Yes, sir.

Q. If the crops had been killed, or the fruit had been injured, you could have told that?

A. Yes, sir.

Further deponent saith not.

Sworn to before me, this 19th day of June, 1914.

—— ——.

The distance traveled by this witness from his home to the place of giving his deposition, and return, was a total of three hundred twenty-two miles, or 156 miles in each direction.

999 J. A. MILLER, the next witness called, being first duly sworn, upon direct examination deposed as follows:

Direct examination.

Questions by W. B. MILLER:

Q. Mr. Miller, where do you live?

A. I live at Athens, Tennessee.

Q. How long have you lived in McMinn County, Tennessee?

A. I have lived there about forty-five years.

Q. What business have you been in, in recent years?

A. Well, I have been farming some for several years, and I have been in the saw-mill business a little, and then I have been dealing in real estate for the last eight or nine years.

Q. Have you ever owned, sold or bought timber?

A. Yes, sir.

Q. Well, have you any interest in the Ducktown Copper Company?

A. No, sir.

Q. Were you requested sometime back by the Ducktown Company to go down into the North Georgia section or country and look at the timber and crops down through there, with a view of finding whether the people were being damaged any?

A. Yes, sir.

1000 Q. Did you have any object or instructions on going down there, other than to honestly ascertain and faithfully report the facts?

A. That was all.

Q. About when did you first go into that section, that lies south, southeasterly and southwesterly of Copperhill?

A. We went down there the 9th day of September, 1913.

Q. How much time did you spend through that section?

A. About nineteen or twenty days.
Q. Going continually through that territory, back and forth?
A. Yes, sir.
Q. Were horses provided for you?
A. Yes, sir.
Q. Did you ride all the time?
A. All the time.
Q. Did you go through the forests?
A. Yes, sir.
Q. Did you go by fields?
A. Yes, sir.
Q. Did you go by orchards?
A. Yes, sir.
Q. Did you inspect the gardens?
A. Yes, sir.
Q. Did you talk to people through that section?
A. Yes, sir.

Mr. **Drake**: I object to this evidence as being leading.
Exception overruled, appeal taken.

Q. Did you stay all night with any of them?
A. No, sir, I did not stay all night. Yes, I did down with one or two of them, at the last, that was further down in Gilmer County.

1001 Q. Gilmer County?
A. Yes, sir.
Q. Did you completely cross Fannin County?
A. Yes, we crossed Fannin.

Q. And during the time you were out on this long trip, did you pass in and out along the water courses, mountains and hills that lay within ten and twelve miles of Ducktown?

A. Yes, sir.

Q. What was your object in going through these mountains, crossing the streams, and through the gardens and fields?

A. Our object was to see whether or not that smoke had done any damage in that country, and see how the timber looked.

Q. Do you know how the gardens, fields and orchards appeared up in that section—your section—hundreds of miles away from there?

A. Yes, sir.

Q. What did you find the conditions to be down in the North Georgia Section, as compared to McMinn County, around Athens and further away from that than Ducktown?

A. I am not out seldom, but it was much better over there, the vegetable crops, it was finer than it was around where I live, a good deal. It seemed like everything was green and nice, and they had better seasons over there, and everything was looking prosperous.

Q. Well, while you were passing along in that section, did you take occasion to go, or were you shown over what is known as the Vestal property?

1002 A. Yes, sir.

Q. Do you remember being on Fightingtown Creek and Jacks River?

A. Yes, sir.

Q. What mountains were you in, and across, while looking over the Vestal Lands?

A. Well, we were in the North Georgia Mountains, in Fannin County, and partly in Gilmer County.

Q. Were you on the sides and tops of those mountains, the most exposed to the fumes that would drift over from Copperhill?

A. Yes, sir, I think so.

Q. What other sections of the country have you visited in recent years, to familiarize yourself as to the death rate of timber, aside from McMinn County, where you live?

A. Well, I have been in twelve or fifteen or more counties.

Q. Of East Tennessee?

A. Yes, mostly. I have been in Tennessee and over in the edge of Middle Tennessee, Cumberland County, I was up in North Carolina, too.

Q. You have been through the mountainous section of Tennessee and North Carolina?

A. Yes, sir, right in the mountains.

Q. How recently was that, Mr. Miller, how many months ago?

A. That was in March, 1914, to the best of my recollection.

Q. How many days were you on these trips going through the woods?

1003 A. I think about seven or eight days.

Q. Now, I will get you to state what you observed as to the death rate of timber, down through the north Georgia section, after you got a mile or two away from Copperhill, as compared with this Eastern Tennessee and Western North Carolina timbered section?

A. It seems to me that it was that way, timber was very sorry, and more of it dead.

Q. Have you ever been in the forests when you did not find more or less dead timber?

A. Sir?

Q. Have you ever been in forests of any size where you did not find more or less timber that was dead?

A. No, sir, you find dead timber generally.

Q. What did you observe as to evidences of forest fires in the North Georgia section, if any?

A. State the question again?

Q. What observation did you make as to forest fires in the North Georgia Section?

A. There had been some large fires, big forest fires that had done a heap of damage.

Q. What effect had those forest fires on timber, growing timber?

A. At certain times of the year it will pretty near kill it all, when the sap is up, up in the timber, and the fire gets into it in the Spring of the year, it does a great deal more damage. It does not do so muc in the Fall, when the sap goes down.

Q. Now, the creeks that run through that mountainou
1004 that is, back of the Copperhill section of Polk County, did yo
observe whether or not there had been numerous saw-mill site
along them?

A. Yes, sir.

Q. And what is the result of operating saw-mills in a body of timber?

A. Well, when you go into it and cut out a great deal of timbe that way, you get the worms, generally they take the timber, and i makes it a heap worse if you go into a body of pine timber and g to cutting it, it nearly kills it all at time.

Mr. Drake: We except to the evidence relative to his trips to Fentress and Cumberland Counties, Tennessee, and adjacent counties, a being irrelevant and immaterial.

Q. Now, allowing for the timber that has been killed as the resul of fires and the result of mill operations along those water course where the saw-mills have been operating, I will get you to stat whether there was an unusual death rate in that North Georgia section?

A. Not much.

Q. Was there an unusual death rate of timber in that Nort Georgia Section?

A. Not outside of those saw-mill sites and around those ol places where it was cleared, no sir. Hemlock timber, there was good deal dead in places around that country, around the saw-mil *sets*, and around the little cleared places. Outside of that I did no see anything uncommon about it at all.

Q. Around those places, the ones you spoke of, could yo
1005 tell whether the trees had been denuded by feeling tha
gas?

A. Yes, sir a good many.

Cross-examination.

Questions by J. A. Drake, Esq.:

Q. When were you first employed by the Ducktown Copper Company?

A. Sometime before I went up there, a few weeks, possibly, before I went up there in September, 1913.

Q. Who was with you on your trips down into Georgia las year?

A. Well, there was, I expect I would have to,—Mr. Reese, here Mr. Maughan, Esq. Maughan, and Mr. Higdon, I can give yo the names of them, I would have to look for the rest of them.

Q. Was Mr. Hughes with you?

A. No, sir, Mr. Hughes was not with me, I do not believe.

Q. Wasn't Mr. Payne with you?

A. Yes, sir, Mr. Payne was with me.

Q. Did you camp on that trip?

A. Which?

A. Did you camp out any?

A. Yes, sir, we camped.

Q. Where did you go to first, when you went into Georgia?

A. When we went over there, we went on Jacks River, in Fannin County.

1006 Q. That is away over southwest from these copper plants, isn't it?

A. Yes, sir.

Q. About how far from them?

A. It is about twelve or fourteen miles, I think.

Q. You were over there *expecting* the Vestal timber, were you not?

A. Yes, sir.

Q. That smoke has been a benefit to that country, hasn't it, if the timber is not so bad in and around these places as it is in other places where the smoke has not gone?

A. I do not think it has been any disadvantage. I could not tell it had hurt anything.

Q. You can not say it has been an advantage?

A. No, sir, I could not say it has been any advantage, but I do not think it has been a disadvantage.

Q. You have been living about how many miles, all these years, from there?

A. About sixty miles.

Q. And they went over sixty miles, over there at Cleveland, to get you to go and inspect it for them? On account of your expert knowledge as a smoke inspector?

A. I don't know what they did it for, they done it.

Q. Are you an expert on smoke, and the effect it has on forests?

A. I do not think I am. I know smoke when I see it.

Q. Sulphur smoke?

A. I think I know that, but I do not claim to be an expert on anything.

1007 Q. Are you an expert on growing vegetation, Mr. Miller?

A. No, sir, I do not believe I am; I do not claim to be.

Q. The only time you have ever been over there was in September of last year?

A. That was the first time.

Q. When was the last time?

A. I was over there some two or three months ago.

Q. This last early Spring, or wintertime before the leaves came out, or afterwards?

A. Along since the leaves came out.

Q. How is that?

A. I said since the leaves came out.

Q. When was it, I want the dates, if you can give them to me.

A. I do not know that I could give them directly.

Q. You cannot tell the months you were over there this year?

A. I have got it on the books, but I have not got the books of this last trip with me, I did—I do not think.

Q. You remembered without your books that you went there last September and saw the conditions, and why is it you can not remember this year?

A. Well, I think it was in April; that is my recollection. I won't be positive about it.

Q. What part of April?

A. I think it was along about the 10th.

Q. Along about the 10th of April?

A. I think so.

Q. Who was with you on this trip?

1008 A. Well, I just went on this same land this trip. I was up there at Court, and went out into the edge of Georgia there, one day, to see the land. That is all I was there, that is, this last trip.

Q. You were up there at Court as a witness for this Company?

A. Yes, sir.

Q. And went out in the edge of the country. Were you in a horse and buggy?

A. No, sir, I went out in a hack.

Q. Where did you go to that day?

A. We went over there in the edge of Georgia.

Q. Don't you know whereabouts?

A. Well, I could look and see whereabouts, but I can not recollect all these things.

Q. Well, I wish you would look and tell me where you went to and who you talked to and saw over there?

A. I could not do that; we saw several men. I could not tell you who I talked with, and who I saw. (Examining memorandum book). I think I was on some of the Harper land over there.

Q. Where was that in Georgia? Don't you know any post office, or store, or anything like that, you can locate it by?

A. No, sir, I do not think there is any store over there, I did not see any.

Q. You can just remember now, one man's land, by the name of Harper that you were on?

A. Yes, sir.

1009 Q. And that is as near as you can locate yourself in North Georgia?

A. Yes, sir, on that trip.

Q. On that other trip, you said you stayed several nights with different people?

A. No, I said I stayed two or three nights. I stayed with Mr. Clayton up above Ellijay.

Q. What Clayton was that?

A. I do not recollect his given name.

Q. What does he do?

A. He is a surveyor, county surveyor.

Q. Who did you stay with another night?

A. We stayed with him two nights, and I do not believe we stayed with anybody else on that trip. We stayes at camp.

Q. You stayed in camp every night except the two nights you stayed with Mr. Clayton?

A. Yes, sir.

Q. Now, did you talk to many people up there about their damage?

A. Yes, sir, I heard several men speak about it, one way or another.

Q. Was that the trip last Fall?

A. That was the trip in September.

Q. They told you that they had been damaged a good deal there last year, didn't they?

A. No, sir, the men over there didn't talk, the citizens did not talk like they had been damaged. There was none of them that claimed damages.

Q. You never saw a man that claimed damages?

1010 A. No, sir, I do not think that they did.

Q. Tell me one man you saw that told you that?

A. There were several men over there that told me it did not hurt them. I do not know whether I could give you the men's names.

Q. Out of so many you talked with, please tell me one man that I may know who he is?

A. Well, there was two or three of the Harkins.

Q. Harkins?

A. Yes.

Q. Was Tom Harkins one?

A. I reckon it was Tom, I do not know whether it was Tom or Dick.

Q. What was the other one's name?

A. I do not know. There was one.

Q. 'And can you name the othere besides Tom?

A. I can name several, if I can think of their names; I did not suppose their names would have anything to do with it, and I did not post myself.

Q. There was two of the Harkins?

A. The best I recollect.

Q. Both told you that?

A. I think so. I do not recollect anybody that claimed that it hurt them, just to go to the short of it.

Q. Where were they when they told you this?

A. They might have been at the camp, they were there several times, or might have been some where else.

Q. What camp do you speak of?

A. The camp over there on Jacks River, at our tents.

Q. On Jacks River?

1011 A. Yes, sir.

Q. What effect does smoke, that sulphur smoke, have on leaves of growing vegetation?

A. I do not know; I never seen where it took any effect.

Q. You did not do what?

A. I never seen where it took any effect.

Q. You have never seen any smoke effect in there?

A. No, I never saw where any took effect, if it did, I could not tell it.

Q. You never saw any sulphur smoke damage to timber at any point, or at any place?

A. No, I might have seen some of it after it was done, but I never seen any on the timber, if I did, I did not know it.

Q. Did you see any afterwards, or at any other time? That you thought the smoke had done.

A. No, sir, I don't know what done it. I saw some dead timber, but I do not know what done it.

Q. On the trip you spoke of, over to Cumberland, and those various counties in Middle Tennessee,——

A. They are in Middle Tennessee, around Monterey.

Q. Who was with you on that trip to Cumberland, Fentress and those adjacent Counties over in Middle Tennessee?

A. Mr. Reese, Prof. Bain, Mr. Shiflett.

Q. When was that trip made?

A. (Examining memorandum book.) That trip was made on March 15th, 1914. We were out there at Monterey.

Q. There were not any leaves out that time of the year, were there?

1012 A. No, sir.

Q. Why did you go from the extreme southeast corner of Tennessee over to Middle Tennessee, to this particular point to look at timber damages?

A. Well, I was sent over there by the Company, to see whether I thought it was real smoke damaged timber, or what it was, or whether I was right about it. I did not think the smoke had done it, and I went over there to see whether I thought it had, or not whether the timber was different anywhere else. That was my business over there, to look at the timber over there, and see the condition of the timber over there.

Q. Are not there thousand and millions of timber between Ducktown, Tennessee, and Monterey, Tennessee, where you got off at?

A. Yes, sir.

Q. Big forests of timber all across that Cumberland Company before you come to Monterey?

A. How is that?

Q. All across the mountain?

A. Oh, yes, there is timber, certainly.

Q. And is not Monterey on the extreme far edge of the Cumberland Mountain Plateau from East Tennessee?

A. No, sir, not on the far edge, right on top of the mountain.

Q. Isn't it right at the top of the incline?

A. I do not know, sir, I did not go beyond it, I went to Monterey, and to the country to the left of Monterey.

Q. You know you can stand on the mountain at Monterey, and look all over Middle Tennessee, don't you?

1013 A. You can see a good deal.

Q. Don't you know all the Cumberland Mountain lies back east of that?

A. You have a pretty good view, yes.

Q. And the only reason you can assign for going to that particular point was that the Company sent you?

A. Yes, sir, they solicited me to go over there.

Redirect examination.

Questions by W. B. MILLER, Esq.:

Q. They sent you out hundreds of miles -way to see the condition of timber, and you went and looked at it and come back?

A. Yes.

Further deponent saith not.

Sworn to before me, this 19th day of June, A. D., 1914.

—— ——,
Clerk & Master.

The distance traveled by this witness from his home to the place of giving deposition was — miles, — miles in each direction.

1014 W. L. DALTON, the next witness called, being first duly sworn, upon examination, deposed as follows:

Direct examination.

By J. A. FOWLER, Esq.

Q. 1. Where do you live, Mr. Dalton?

A. I live in Copperhill.

Q. 2. In Copperhill, the place where the Tennessee Copper Company's plant is located?

A. Yes, sir.

Q. 3. How far do you live from the plant?

A. A little over a quarter.

Q. 4. How long have you lived there?

A. Well, I have been living there last February a year ago.

Q. 5. Do you hold any official position?

A. I am J. P. in the Tenth District.

Q. 6. Of Polk County?

A. Yes, sir.

Q. 7. How long have you been justice of the peace?

A. Last August, a year ago.

Q. 8. 'Squire, how long have you been familiar with that neighborhood, that country in there?

A. I have been living in the Tenth District, outside of two years, for thirty-seven years.

Q. 9. Were you raised in that district?

A. Yes, I come there when I was about ten years old.

Q. 10. Were you acquainted with that locality when they roasted the ore in open heaps?

1015 A. Yes, sir.

Q. 11. What effect did that have on the timber?

A. Pretty bad.

Q. 12. In that Basin?

A. In four or five miles out it killed all, everything.

Mr. Drake: We except to that evidence as irrelevant. Exception overruled, and appeal taken.

Q. 13. What effect did that have on the crops, also other vegetation?

A. It hurt it, there was not very much garden stuff raised for a few miles.

Q. 14. Since the Tennessee Copper Company erected that high stack, that 350 foot high stack, what effect did that have?

A. It don't hurt so bad right around there, but lots of complaint further off. It is doing a lot of damage further off.

Q. 15. It is scattering the fumes?

A. Yes, sir.

Q. 16. Did you travel through that section of the country very much while the stack was operated before the acid plants went into operation?

A. Yes, sir, some,—all over the whole country about there.

Q. 17. Were you down into Georgia some?

A. Well, I have been pretty well all over Fannin County, several times. I have not been in any lower down. I was not down in Gilmer or Pickens Counties, and I never have been in Union County, Georgia. 1016

Q. 18. Before these acid plants went — operation, and after the acid plants were constructed, do you notice much damage in Georgia?

A. How is that?

Q. 19. I say, before the acid plants went into operation, some few years ago, and after this high stack had been erected, did you notice much damage in Georgia?

A. Yes, sir, a lot of damage down there.

Q. 20. How far did that damage extend?

A. Well, it reached a good long ways, I do not know so far down in Georgia, like I told you, I was just around in Fannin County. I do not know what it has done in Gilmer or Pickens Counties, but there was some smoke signs in Fannin County. They said it was smoke signs, and I guess it was, it looked like it to me.

Q. 21. You saw damage to timber in there?

A. Yes, burnt up and dying.

Q. 22. After these acid plants went into operation, what effect did that smoke have in that country through there?

A. Outside of a few miles, I have seen the stuff scorched *scorched* a little, it has not done anything.

Q. 23. You raise a garden?

A. Yes, sir. Well, I own a farm four miles from Copperhill on Grassy Creek.

Q. 24. In what direction?

A. West of Copperhill.

Q. 25. Is that in Georgia or Tennessee?

A. It is in the Tenth District, Polk County.

Q. 26. How near the Georgia line?

1017 A. I expect it is a mile or a mile and a quarter.

Q. 27. North of the Georgia line?

A. Yes, sir.

Q. 28. What effect did the sulphur have on that farm and the vegetation and timber growing on it before these acid plants were constructed?

A. It has hurt it bad.

Q. 29. Did it kill any timber on it?

A. It killed all the big timber there, large number.

Q. 30. The large, or the smaller timber?

A. Why, I think it killed some of it, seemed to hurt the older timber worse than the younger.

Q. 31. Did it hurt your crops also?

A. Yes, sir.

Q. 32. Since these acid plants have gone into operation in the last few years, what effect have they had?

A. I worked for the Tennessee Copper Company in the last four years, and rented mv place, outside of sowing oats and sowing grass, outside of the stuff we raised, Our gardens were good. We raised good Irish potatoes, that is, since the acid plant started, and the apple trees were almost,—the orchard on the place where I live, I have an old fashioned orchard, and at the time they put up the acid plants it was almost dead, mighty near gone, and it has revived up, and bearing apples, and new growth coming out on the old trees, and year before last I sowed three acres in oats, and raised as good as I saw anywhere. I don't care where they come from.

Q. 33. Was that 1912?

A. Yes, sir.

1018 Q. 34. Do you know whether or not oats are especially susceptible to these fumes?

A. They are as easy to kill outside of young herds grass, which is easier.

Q. 35. Have you noticed smoke in the herds grass?

A. No, sir, I am raising it on my place, and I could not raise it at all if it hit it.

Q. 36. Four miles from the plant?

A. I don't expect it would be over three miles air line.

Q. 37. Stste whether or not the winds drives in that direction quite often?

A. Now, in the summertime it does, and in the wintertime,—the winter wind is from the north and northwest, then it does not bother us any, but in the summer, the smoke kind of bothers us, and drifts down the river. I am only a mile or a mile and a quarter from the river on Grassy Creek.

Q. 38. Of course, in the winter season, it does not hurt anything?

A. No, I do not think smoke hurts anything in winter time.

Q. 39. What effect has that smoke had on the timber on your place?

A. None for the last four years.

Q. 40. Does it or not, do any damage?

A. I have seen leaves damaged a little bit, but it looks like the new growth of timber, the young timber that is left, is dried, but it looks like now that it is growing as fast as young timber can grow.

Q. 41. Do you see any difference between that and the young timber you can see forty miles away from there?

1019 A. I cannot more than this, the young timber that is over four miles from the plant, has never been culled like we cull our timber close to the mines, for wood and such as that, but so far as the wood and log is concerned, I cannot see any difference.

Q. 42. You say your place is a mile or so from the Georgia line, what are the conditions in Georgia?

A. I do not think there is anything wrong in Georgia.

Q. 43. Have you been through North Georgia along there?

A. I have not been there much this spring until one day last week I went through from number twenty mine, going from Cooper Hill, to my farm, and out to what they call John Pelfrey's, and I believe John Pelfrey has got the finest young orchard I ever saw.

Q. 44. How far is that?

A. It looks like there might be three or four hundred of them that *that* might be ten or twelve years old, and about anywhere from fourteen to sixteen hundred trees.

Q. 45. Just young trees?

A. Yes, sir, about three years old.

Q. 46. Apple and peach trees?

A. Apple trees.

Q. 47. Are they healthy?

A. Yes, sir.

Q. 48. Did you notice whether they had any fruit on them?

A. No, sir, I was not in the orchard at all.

Q. 49. Was there any occasion for you to travel through Fannin County, Georgia, in 1912 and 1913?

A. How is that?

Q. 50. I said, was there any occasion for you to travel through Fannin County, in 1912 and 1913?

1020 A. Yes, I have been through Fannin County, a whole lot, that is, along the latter part of the fall. I buy a good many cattle.

Q. 51. In traveling through the county, did you notice the timber more or less?

A. Yes, sir, I noticed the crops and the apple orchard more than I noticed the timber?

Q. 52. Have you, during the last three or four years, since that acid plant was installed, observed any damage of any consequence done in Fannin County, arising from smoke.

A. No, sir, not that I would call that.

Q. 53. Were you among the gentlemen that inspected that Vestal property?

A. Yes, sir.

Q. 54. When was that?

A. That was 1912, along the last of September, I have forgotten the date. I have not the memorandum book with me.

Q. 55. How long a time were you out on that trip?

A. We were out six or seven days.

Q. 56. Did you make a thorough examination of it?

A. Yes, sir.

Q. 57. What did you find the conditions of the timber to be?

A. Well, it was green timber, Joe Vestal's chestnut timber,—he had the finest chestnut timber I ever saw anywhere.

1021 Q. 58. State whether or not chestnut timber is very susceptible to this smoke?

A. They claim it is easy killed, and it is killed off of my place.

Q. 59. When was it killed on your place?

A. When they used to run the roast heaps, that is when they hurt me the worst, when they had the roast heaps. We have better success up there since they quit that. The roast heaps was what hurt me and the rest of us in three or four miles of the plant.

Q. 60. Didn't you notice any damage to Vestal's timber?

A. What I seen, or what they showed us, so far as knowing all of Vestal's timber is concerned, I just Know what the guide said, and a few lines I knew. He told me, and I noted the lines, that is all. And I have been over part of it two or three times.

Q. 61. Regardless of whether it was Vestai's timber, where you were traveling, did you notice any damage by the smoke?

A. It looked more like fire scald than smoke to me.

Q. 62. Can you tell the difference between fire scald and damage from smoke?

A. I think so. I have seen lots of fire, fire sign.

Q. 63. What do you mean by fire sign?

A. Lapps and other things that are gathered around the other timber, and burnt.

Q. 64. State whether or not there are forest fires every year through there, through that part of Georgia?

A. Yes, sir, that is the great trouble with our country, forest fires hurting the young timber, than anything else.

Q. 65. Can you state whether or not the D. S. C. & I. Company's plant, at Isabella, ever committed any damage on your property?

1022 A. I can answer in this way. I have lived there and know the property on the south side of the Ocoee River, well, I did not know the property all the time they were roasting, but I never seen a thing bad until the Tennessee and Pittsburgh Company started. I never seen a thing killed on the south side of the Ocoee River at the time the Ducktown people were roasting, and nobody else did.

Mr. Drake: We except to that as a conclusion with nothing to base it on.

Q. 66. Prior to the establishment of the Tennessee and Pittsburgh Company, did you notice any timber killed across the Georgia Line?
A. No, sir.

Mr. Drake: We except to that because immaterial. Exception overruled and appeal prayed and granted.

Cross-examination.

By J. A. Drake:

Q. 67. Mr. Dalton, you say you were in Georgia last year, about the last of September?
A. No, not last year.
Q. 68. What year was it?
A. 1912.
Q. 69. And that was the same crowd that the copper company sent out to inspect the Vestal timber, especially?
A. The Isabella people, you mean?
Q. 70. Yes, the D. S. C. & I. Company?
1023 A. I was in one crowd, I do not know how many crowds they sent out.
Q. 71. You just went out one time?
A. Yes, sir, just one time.
Q. 72. At the time you were there, I will ask you if frost had not fallen?
A. In September?
Q. 73. The last of September, or first of October?
A. I do not think so.
Q. 74. There hadn't any fallen; how many days did you stay?
A. I had no idea of ever being in this. I would have to guess at that, I believe we went about the 25th or 26th of September and came in the first or second of October, as well as I recollect.
Q. 75. You said you had no idea you would be a witness?
A. No, no more than one time, I did not think I would have to just keep on and on in this.
Q. 76. How many times have you been a witness?
A. They have had me four times.
Q. 77. You mean in other cases besides this?
A. In the Vestal cases.
Q. 78. Have you been in any other case except the Vestal case?
A. I do not think so.
Q. 79. I will ask you if you have not been a witness in suit, as many as four times?
A. I have been four times.
Q. 80. In which ones?
A. I have been a witness two or three times in the Ducktown Court and that court up there.
1024 Q. 81. Relative to the same matter, the smoke cases?
A. The smoke condition, but not with regard to the Georgia trouble.
Q. 82. It was smoke trouble?
A. Yes, sir.

Q. 83. Did you make an affidavit in this original case in 1906, or '07 or '05?

A. In which suit?

Q. 84. The State of Georgia against the two companies, in the United States Supreme court, when they took the evidence by affidavit?

A. In 1901?

Q. 85. No, along about 1906, I think most of the evidence was taken.

A. 1906?

Q. 86. I think that is the time, in the year 1906, but at any rate, at the time they took the original proof by affidavits in this particular cause, when the State of Georgia moved to close those companies out, did you make an affidavit?

A. I do not recollect if I did.

Q. 87. Is there another man by your name, the same name, up there?

A. W. L. Dalton; not that I know of. I will declare I could not say whether I did or not, it sort of seems like I did, but I would not swear that I did or did not, I have forgotten.

Q. 88. Didn't you say in that affidavit that there was no damage?

A. Yes, sir, just a little. I told you I did not know that I said anything at all.

1025 Q. 89. You have forgotten what you did state?

A. I do not know what I said.

Q. 90. And this country you have spoken of being in last fall, investigating the Vestal's property, is southwest from these plants, is it not?

A. Yes.

Q. 91. Over in the——

A. Jacks River country.

Q. 92. And what do they call that mountain where they camped some?

A. Tumlin Creek.

Q. 93. Were you with them over on Frog Mountain?

A. No, sir.

Q. 94. But you were in the Jacks River country?

A. Yes, sir.

Q. 95. You were sent there especially to investigate the Vestal land, and that is what you did?

A. There was other land that we were on, but I do not know whose it was.

Q. 96. In that same country?

A. Yes, sir, in the same country.

Q. 97. Did you make any inspections through the Flat Creek country, southeast and north west from Blue Ridge?

A. No, sir.

Q. 98. I will ask you if the Tennessee Copper Company was not shut down in the year 1913, on May 17th, or along about that time?

A. They were,—I do not recollect the dates, but they were shut down in May, but I do not recollect the date. I was not
1026 working for them at that time. I quit working for them last December a year ago. My boys were working there, and

all I know is they said they were repairing and shut the smelter down in May.

Q. 99. I will ask you if in the case of Shippen Brothers Company against the Ducktown Sulphur, Copper and Iron Company, in the Federal court in Tennessee, if you did not give your evidence by deposition at Chattanooga?

A. Yes, sir, but I think it was all the same suit, the Vestal and Shippin altogether.

Q. 100. I will ask you if you were not asked these questions and made these answers to those questions? "Q. You say the Tennessee Copper Company shut down on the 17th day of May?" And you answer, "Along about that date. Q. Are you definite as to the time? No, sir, I think it was the 17th, I would not be sure just what date. Q. That is your recollection? A. Yes, sir. Q. Put all the smelters out of blast? A. Every one of them. Q. For how long? A. Until some time in June, the 8th or 10th of June, I think. They closed down for a month, but it was not quite a month." Did you state that in that case, or that in substance?

A. I guess I did. I guess if that is there, I stated it.

Q. 101. And is or not that the facts?

A. Yes, sir, they closed down sometime in May, I do not know just what day they closed down for a month, and I know they did not stay closed for a month.

Q. 102. How long did they stay closed down?

A. It strikes me they were down about twenty or twenty-two days, I do not recollect that now.

1027 Q. 103. They did shut down at that time?

A. Yes, sir, they were shut, but I do not recollect the date.

Q. 104. Did not you swear it was on the 17th of May?

A. At that time I may have known, for it was fresh on my mind, but it has been a long time and I have not been trying to keep it in mind.

Q. 105. If you stated that at that time, it was the truth, wasn't it?

A. I think it was, that was what I meant to swear.

Q. 106. Your recollection was better then than now?

A. I do not think so. I have not been trying to keep it on my mind.

Q. 107. I mean your recollection as to when it closed down last year was better on account of it being fresher and nearer to the time than it would be now?

A. Yes, I think it would. I worked for them, and we and the foreman were all good friends, and we talked backwards and forwards. I know they were closed down. I know they closed down in May.

Q. 108. I do not remember whether it was asked, but I will ask you again. What is your present occupation?

A. I am not doing anything since last December a year ago, but a little justice of the peace work.

Q. 109. How long did you work for the Copper Companies?

A. I quit the first day of December a year ago, maybe two years ago.

Q. 110. I will ask you if last May when the Tennessee Copper Company closed down, if they did not start them up very
1028 slowly, one at a time?

A. That is what the foreman told me. I was not down there, I could not tell you, only what I could see from where I lived, and they told me.

Q. 111. Was not it the 28th day of June, before they did get two or three of their furnaces into operation?

A. Something like that. They were down again last spring, I do not recollect the time.

Q. 112. And did not you swear in that same deposition, in the Shippin case, that they did not start up full blast on those furnaces until the 28th of June?

A. What time in June?

Q. 113. The 28th of June.

A. They were down in May and started up some time in June, I do not think it was as late as the 28th, if I swore it I meant to swear the truth.

Q. 114. Were you asked the question in that deposition: "Wasn't it about the 28th of June before they got them all in blast?"

A. Yes, I was asked the question, and I do not recollect just the time I answered. I was asked the question about what time they got in blast.

Q. 115. And didn't you make this answer and is not that the truth to the question, "More than likely it was. I know they started once about the 8th or 10th of June, and the other started along after that"?

A. Yes, I guess I made that answer.

Q. 116. And were not you asked this question, and made this answer to it, "Is it not your recollection that it was somewhere towards the latter part of June before they got them in full
1029 blast?"

A. Yes, sir, I believe it was, as well as I remember, they started one, then in a short time another."

A. What year was that in?

Q. 117. Did you make that answer to the question?

A. I suppose I did if it was there. They started along——

Q. 118. And was not you talking about last year, the year 1913?

A. How's that?

Q. 119. About the plant being closed down?

A. It was closed down a few days as well as I recollect, that was in May.

Q. 120. Wasn't this evidence I just read to you, relative to the year 1913, in May?

A. I thought it was 1912 you were talking about all the time.

Q. 121. What year was it they were closed down in May?

A. They were closed down year before last, closed down something like a month, twenty days or a month, and last year they were closed down a while, but not so long, I do not recollect just how long.

Q. 122. Then they were closed down both years about the same time?

A. It was in May both years, if I recollect correctly.

Further deponent saith not.

Sworn to before me this 19th day of June, A. D. 1914.

——— ———,
Clerk & Master.

1030 The distance traveled by this witness, from his home to the place of taking his deposition and return, was a total of 22 miles.

1031 J. R. QUINN, the next witness called, being first duly sworn, upon examination, deposed as follows:

Direct examination.

By J. A. FOWLER, Esq.:

Q. 1. What is your age?

A. Forty-three or four, along there.

Q. 2. Where do you live?

A. I live down, I live in the Ducktown Basin, I live pretty close,—I live on my own property, the Quinn property.

Q. 3. You live in Tennessee?

A. Yes, sir.

Q. 4. How far from the Georgia line?

A. Well, a mile and a half I guess from the top of the hill.

Q. 5. How far do you live from the D. S. C. & I. Company's furnace?

A. About a mile and a half.

Q. 6. How far from the Tennessee Company's furnace?

A. About a mile and a half, right along on the road.

Q. 7. Do you live between them?

A. Yes, between the two properties.

Q. 8. How long have you been acquainted with that neighborhood in there?

A. I was born and raised there

Q. 9. Mr. Quinn, before or since the establishment of roasting or in open heaps, what was the effect on that territory?

1032 A. I was in the timber business, cutting cord wood and selling it to the furnace to use, and I know some of the leave would be bit.

Q. 10. When was that?

A. That was when they began roasting and smelting?

Q. 11. Did it kill the timber in the immediate vicinity of thos heaps?

A. Yes, sir, it killed it around there.

Q. 12. How large a space around there was there, where it killed the timber in the beginning?

A. I was working in about a quarter or a half mile of the mill, of the roast pile, putting in wood.

Q. 13. Was the timber killed in your section?

A. Yes, sir*m* it killed some of it.

Q 14. When they erected that high stack to the Tennessee plant, what effect did that have?

A. After that was put up the grass and everything grew close, and I set out some peach trees and went to raising peach trees.

Q. 15. What effect did that have as to the timber at a distance?

A. I cannot answer that.

Q. 16. Did you ever look at the timber a few miles away from there?

A. Several years ago, is the only time. I quit the timber business, and went into the mines, quit going out into the timber.

Q. 17. Now, Mr. Quinn, getting down to the present time,
1033 what are you doing now?

A. I am mine foreman at the Tennessee mines.

Q. 18. To which company does that mine belong?

A. To the D. S. C. & I. Company.

Q. 19. How long have you been working for the company?

A. Fifteen or sixteen years, somewhere along there.

Q. 20. Do you own your own property where you live?

A. I own three hundred and twenty acres of land.

Q. 21. Do you live on this three hundred and twenty acres?

A. Yes, sir.

Q. 22. Does it, all lie between the two furnaces?

A. Yes, sir.

Q. 23. What kind of land is it?

A. It is a little rough, hills and hollows, branches running through it.

Q. 24. Do you cultivate any part of it?

A. Yes, sir, cultivate a garden around the home.

Q. 25. Is that all the property you cultivate?

A. Yes, sir.

Q. 26. What do you raise in that garden?

A. I raise corn, Irish potatoes, sweet potatoes, cabbage, lettuce, mustard, garden peas, beans, just such stuff as that.

Q. 27. Things that usually grow in gardens?

A. Yes, sir.

Q. 28. Has that garden been injured during the present year by the sulphur fumes?

A. I have noticed the leaves being bit,—looked like something had done it.

Q. 29. The leaves on what vegetation?

1034 A. On some mustard and some lettuce.

Q. 30. When was that?

A. That was last Monday a week ago, and last Tuesday, some smoke got over there.

Q. 31. You mean last Tuesday a week ago?

A. Monday and Tuesday.

Q. 32. Where did it come from?

A. Well, I will,—I got off from the Tennessee mines to go t Copperhill to see two cusins I has coming from Chattanooga There was a little bit of smoke up there about Isabella, but a might little, and there was some at Copperhill, but it was not thick, tha smoke, I suppose the biggest part was coming from the Tennesse Copper Company.

Q. 33. Could you tell which way it was coming from?

A. The wind was blowing this way.

Q. 34. Was it blowing from the Tennessee Copper Company plant?

A. Yes, sir, traveling from it.

Mr. Drake: I except to the question on account of being leadin and a question of fact, which he makes a supposition without an foundation to support it.

Exception overruled and appeal taken.

Q. 35. What direction was the wind blowing?

A. Let's see. I disremember which way it was going, right pas by my house.

Q. 36. State whether or not the way the wind was travelling woul have carried the smoke in your direction, from the Tennessee Coppe Company?

A. Yes, sir, blowing right over my property this way.

Q. 37. In what direction would that wind have been t
1035 have carried the smoke from the Isabella furnace, would i
have carried it towards your house, the same direction?

A. It would have carried it north, northwest.

Q. 48. How long did that smoke last?

A. About ten o'clock, I believe.

Q. 49. Was that ten o'clock in the morning?

A. Yes, sir, I left East Tennessee at eight, come to Isabella, dow to the office, then come on down towards home.

Q. 50. How long did you notice the smoke?

A. I noticed the smoke from about ten on up until nearly eleve then I got over to the passenger depot at Copperhill.

Q. 51. Did you notice it at your place after that?

A. I noticed it when I left my place and went to Copperhill, I went afoot, went over the hill.

Q. 52. Was that the last you noticed of the smoke?

A. Yes, sir.

Q. 53. Did you find any vegetation at your place that had bee injured by smoke during the present season, at any time?

A. I have not noticed it at all.

Q. 54. How was it last year?

A. Last year I never noticed it at all on anything except som old goose berry bushes, some leaves, and on some little young garde truck.

Q. 55. When was that?

A. Along in the summer, I do not recollect the date.

Q. 56. Could you tell from what direction that smoke came?

1036 A. No, sir, I do not recollect the direction.

Q. 57. Was it just the one time?

A. No, that was just the one time you know. I left at nine o'clock and got back at five that evening.

Q. 58. You do not work Sundays?

A. No, sir.

Q. 59. Did you notice any damage during,—before?

A. No, sir, I don't believe I noticed anything, is my recollection.

Q. 60. Since those acid plants have been installed, have you noticed much damage to the vegetation on your place?

A. No, sir, just looks like a little scorch on the leaves.

Q. 61. Did it cause any material damage to the land or plants, or the amount the plant will produce?

A. Well, the way that is, some people say that sometimes it will bite it and it will live and sometimes it will die. It will fold over some little tender plants. Take a peach tree leaf, it will gloss that over and it won't die, but take a cherry tree leaf, and it will gloss and not die, but take a little plant and it will die.

Q. 62. Which are the plants it will bite most?

A. Mustard and lettuce and garden peas.

Q. 63. And young potatoes?

A. Yes, sir, it will bite young potatoes, Irish potatoes.

Q. 64. How about tomatoes?

A. It will bite them, and it will come again when it rains.

Q. 65. How is that about rye?

1037 A. I never noticed any except in the winter.

Q. 66. Have you an orchard?

A. Yes, I have about 350 peach trees.

Q. 67. How old are they?

A. I have one peach tree that I carried from Georgia and set out about nine years ago, it has had peaches on it seven years I will say, out of eight.

Q. 68. How is the other orchard?

A. Those, why six years ago I set them out.

Q. 69. You set them out in nineteen hundered and what, 1908?

A. Yes, sir.

Q. 70. I wish you would describe the kind of trees they are?

A. I have the early Glass May peach, I have the Sneed, that is the next peach, then the cranberry, and then the Dewey, and Carmon, the Stonewall Jackson, the Liberty and Fenson's for October. I have them that will ripen every fifteen days.

Q. 71. What is the condition of the trees?

A. They don't look like anything was wrong with them.

Q. 72. Are there ripe peaches on them?

A. Yes, sir, we have ripe ones on them now.

Q. 73. You have ripe ones?

A. Yes, sir, May peach.

Q. 74. How are those not ripe, the green peaches?

A. They are looking nice.

Q. 75. Do you see anything wrong on them at all?

A. No, sir, only sometimes they get some of the little tender leaves hurt.

1038 Q. 76. Did you produce any last year for sale?

A. Yes, sir, we had about 110 bearing trees, and sold $130.25, I believe or thirty cents and canned and give away, and fed to the hogs.

Q. 77. Did you notice any damage whatever in your orchard last year?

A. No, sir, my peaches were all clear of worms.

Q. 78. In 1912, was there any damage?

A. No, sir, I never noticed any whatever.

Q. 79. Since these acid plants have been operating, have you noticed any damage to the trees?

A. No, sir, only what I told you my trees had nothing on them to kill them.

Q. 80. Are your trees subject to insects and worms?

A. No, sir, they are clear, except one or two that have worms this year.

Q. 81. You have to spray them?

A. No, sir, I do not spray them, I have nothing to do but plow them and plant corn.

Q. 82. Are your peaches defective?

A. No, sir, just as clear and pretty. The Seathers from Knoxville said I had the nicest peaches he ever saw. He travels for the Knoxville nursery.

Mr. DRAKE: We except to that because hearsay.

Exception overruled, and appeal prayed and granted.

Q. 83. Prior to the time these acid plants were installed, did you know of any orchards growing in that neighborhood?

A. No, sir, about all I know of was across there in Georgia.

1039 Q. 84. Did anyone try to grow fruit trees in there before these acid plants were installed?

A. No, I do not know as they did, unless there might have been a few at Ducktown, a few.

Q. 85. State whether or not the fruit trees were killed in there before these acid plants were put into operation?

A. Yes, sir there were some killed. I could not swear whether they were killed by the smoke or not, or the worms or what.

Q. 86. Is there any young growth coming up in between the furnaces?

A. Yes, sir.

Q. 87. To what extent?

A. You can see young sprouts coming up out of the grass when it has been cut off.

Q. 88. What kind of grass grows there?

A. Broom sage.

Q. 89. Does it grow there every year?

A. Yes, sir, the cattle live on it.

Q. 90. Is it very tender?

A. Yes, sir.

Q. 91. In the fall season when the broom sage dies, state whether or not it is thick?

A. Yes, sir, and some people mow it and put it in beds, and use it in beds.

Q. 92. And do they burn it off?

A. Yes, sir, they burn that off from fall on up till the stuff rises in the spring and begins to grow.

Q. 93. State whether or not that kills the young underbrush?

A. Yes, sir, it kills that underbrush after the sap is in, and they burn it and the leaves fall off and die.

Cross-examination.

By J .A. Drake, Esq.:

1040 Q. 94. How far do you live from that *view* pike road built from the Tennessee plant to the Isabella plant?

A. I live about three quarters —.

Q. 95. Which way?

A. It goes around the,—I live this way from it.

Q. 96. Do you live east or west of that road which runs north and south in a general direction?

A. I do not know.

Q. 97. Is not the Isabella plant north and the Copperhill plant south, and you live between them?

A. Yes, sir.

Q. 98. And the road runs between them and does it run north and south?

A. I think it does.

Q. 99. Do you live east or west of that road?

A. I live east, right along there on the old road.

Q. 100. You don't live directly between the two plants, but you live about three quarters of a mile east from between the two plants?

A. I live in,—I can show you better than I can tell you.

Q. 101. Now, here is the Isabella plant and here is the Tennessee plant?

A. Yes, sir.

Q. 102. And that pike road comes down between them?

A. Yes, sir.

Q. 103. You say you live east; now, where is the Quinn property?

A. I do not know.

Q. 104. I am asking where you live, with regard to that road?

A. Show me the road, and I will sight you. I come right back over there. (Indicating.)

Q. 105. You are going from Tennessee up to Isabella, remember?

A. Yes.

1041 Q. 106. That leads from the Tennessee plant up to the Isabella plant, now, do you live over here, this is west, do you live east or west from that road?

A. I would live right over there. I don't know, I,——.

Q. 107. Then you are three quarters of a mile east from the line directly between the two plants, are you not?

A. I am three quarters of a mile from this place, and from where the pike comes along, I would be about a mile and a half from here. I would be a mile and a half.

Q. 108. What I mean, you are not directly between the two plants, north and south?

A. I do not know as I am, I mean I am right half way,—I am right on half way ground between this smelter and this smelter. (Indicating.)

Q. 109. I understand, about three quarters of a mile east, from the direction line?

A. From the pike road, yes, sir, it is a mile and a half over here, and then a mile and a half up here to Isabella.

Q. 110. As I understand you, peaches resist that smoke better than any other kind of fruit trees, do they?

A. Yes, and cherry and plumb trees.

Q. 111. You mean cherries and plumbs?

A. No, I mean plumbs and cherries and peach trees, peaches and cherries.

Q. 112. Apples cannot be grown in there at all, can they?

A. I never mentioned any apples.

Q. 113. You say that after the tall stack was built, and the roast heaps were taken away, that it took the fumes up and throws it higher, and it does not hurt you like it used to?

A. No, when it was burnt in heaps it went over on a level, and after the stocks were put up, it scattered.

Q. 114. Then, it was nine years ago you brought this peach tree you spoke of and set it out, and it has been doing well for nine years?

1042 A. Yes, sir, bearing fruit.

Q. 115. For eight years, I believe?

A. Yes, sir.

Q. 116. When were those other trees planted?

A. They were set out at two years old, and have had three crops on them now, and this is the sixth year that they have been out.

Q. 117. You mean they were two years old trees when you set them out, and you set them out six years ago?

A. Yes, sir.

Q. 118. Now, Mr. Quinn, those acid plants have not been built but about five years, have they, didn't they start those acid plants in there in 1909?

A. 1909, somewhere along there. I disremember the time of the acid plants.

Q. 119. You had had them trees out, the youngest ones a year before the acid plants were built, and the oldest ones out about four years or five years before the acid plants were built?

A. Yes, sir, I set them out for shade trees, and we found they would grow, and then I took a notion and bought some more.

Q. 120. When you found out after planting that first one, nine years ago, and they had built this tall stack, and threw the smoke away, you went to experimenting and found that to be a good fruit country, so you bought some more peaches?

A. Yes, sir, I tried, I grew that one, and when I found it would grow, I went to work experimenting with fruit, to see what effect the smoke would have on them, and then set them out.

Q. 121. You attribute that to the high stacks drawing the smoke further away?

A. Yes, sir.

1043 Further deponent saith not.

Sworn to before me this 19th day of June, A. D., 1914.

——— ———,
Clerk and Master.

The distance travelled by this witness from his home to the place of taking of his deposition and return, was a total of 228 miles, 114 miles in each direction.

The hour growing late, adjournment was taken in the taking of depositions in this cause, until nine o'clock on Saturday, June 20th, A. D., 1914, at the same place.

Pursuant to adjournment, the further taking of depositions in this cause was resumed at the same place, and in the presence of the same parties heretofore mentioned, on this the 20th day of June, A. D., 1914, at nine o'clock, a. m.

1044 GEORGE P. DICKEY, the next witness called, being first duly sworn, upon examination, deposed as follows:

Direct examination.

By J. A. FOWLER, Esq.:

Q. 1. Mr. Dickey, where do you reside?

A. Mineral Bluff, over in Georgia, Fannin County.

Q. 2. What business do you carry on there?

A. I am a merchant.

Q. 3. How long have you been a merchant there?

A. Twenty-two years.

Q. 4. Do you hold any official position over there?

A. Not now, I do not *know.* I represented the county in 1911 and 1912.

Q. 5. In the Georgia legislature?

A. In the Georgia legislature, yes, sir.

Q. 6. State whether or not you canvassed the county at that time?

A. Yes, sir.

Q. 7. Were you over the entire county?

A. Yes, sir, over every part of it.

Q. 8. You say that was in 1912 you canvassed the county?

A. 1910, when I canvassed; I was elected and served in 1911 and '12, elected in October.

Q. 9. Have you been over the county in the last year or two?

A. Yes, sir, I have been pretty nearly over it. This year I have not been entirely over the county, but around over the county.

Q. 10. What kind of merchandise do you sell?

A. General line.

Q. 11. Do you handle fertilizer?

A. Yes, sir.

1045 Q. 12. Did you sell fertilizer to the gentleman who made the premium crop?

A. No, sir, I did not.

Q. 13. Did you see the crop?

A. Yes, sir.

Q. 14. What is the gentleman's name?

A. Addington, J. V. Addington.

Q. 15. How far was that crop growing from you?

A. About six miles dirt road.

Q. 16. What time of the year was it when you saw it?

A. It was along about the latter part of August.

Q. 17. What was the condition at that time?

A. It was looking mighty fine.

Q. 18. Was there any evidence of injury from smoke?

A. I didn't see any.

Q. 19. Did you examine the crop pretty thoroughly?

A. Yes, sir, looked it over good.

Q. 20. How high was the corn at that time?

A. It was tasseled out, and in roasting ears, part of it.

Q. 21. How much was it he made to the acre?

A. 137 bushels and fifty two pounds, I believe is what he made.

Q. 22. Was he cultivating anything else?

A. Yes, sir, potatoes.

Q. 23. What kind of potatoes?

A. Irish potatoes.

Q. 24. Did you see his potatoes,—Irish potato crop?

A. Yes, sir.

Q. 25. Do you know how many potatoes he made to the acre?

A. He told me he made four hundred bushels.

Mr. DRAKE: We except to that as being hearsay.

Q. 26. How did his Irish potato crop look?

1046 A. It was pretty well died down, you know, in August.

Q. 27. Were they early potatoes?

A. Yes, sir.

Q. 28. They had matured?

A. Yes, sir, pretty well matured, the vines seemed to be well grown.

Q. 29. You did not see any of the potatoes dug?

A. No, sir, I bought some of them in the winter.

Q. 30. Were they fine potatoes?

A. Very nice potatoes.

Q. 31. Did you see any evidence of smoke damage in that section of the country where this man Addington lived?

A. No, sir, I do not think I did.

Q. 32. That was the year 1913?

A. Yes, sir, last year.

Q. 33. State whether or not in your section of the country, around Mineral Bluff, you saw any evidences of smoke damages? That year?

A. 1913?

Q. 34. Yes.

A. Pretty little.

Q. 35. You say very little, which implies there was a little, I wish you would describe what you mean by that?

A. I have seen some leaves turned brown, a little. In 1910 it was pretty bad, but nothing like half as bad as before.

Q. 36. How was it in 1911?

A. It was better than 1910.

Q. 37. How was it in 1912?

A. Well, it was still making improvements.

Q. 38. Then in 1913 you have described?

A. Yes, sir.

1047 Q. 39. Was there any difference in 1912 and 1913?

A. Yes, sir, I think, there was some.

Q. 40. Was it better?

A. In 1913?

Q. 41. Which was better?

A. 1913.

Q. 42. How was it this year?

A. I think the foliage is as pretty as I have ever seen it.

Q. 43. Have you seen anything wrong with it this year?

A. I have not seen anything wrong with it.

Q. 44. During last year, did you see any evidence of sufficient injury to cause damage to timber?

A. No, sir, I think not. I have some timber, and I went and looked over it to see if I thought it was injured enough to put in a claim, and I decided not to.

Q. 45. That was last year?

A. Yes, sir.

Q. 46. How much timber do you own?

A. I only own about one hundred acres of land. I owned three hundred acres and some odd last year.

Q. 47. Was it well timbered?

A. Yes, sir.

Q. 48. Was there any damage to the timber in 1910?

A. Some.

Q. 49. How was it in 1911?

A. Not so bad.

Q. 50. Do you think it was damaged bad enough to put in a claim in 1912?

A. No, I never have.

Q. 51. You never have put in any claim. How were the crops in that section of the country?

1048 A. The weather is mighty bad, and corn and rye are needing rain, there is a good deal of rye and they say it is the best they ever had.

Q. 52. State whether or not rye is susceptible to smoke fumes?

A. I should think so, it is a mighty tender plant.

Q. 53. If you should have any of those fumes there, they would effect the rye in your county?

A. Yes, sir, they would, but we have got the best crops of rye, and we had a mighty good crop last year, and people say it is better this year than last.

Q. 54. Have you travelled through North Georgia, Fannin County, during the present year?

A. Yes, sir, I have been out some.

Q. 55. To what extent?

A. Up to my home town, and out across from there to my other place, over about Copperhill, and down to the North Carolina line.

Q. 56. Have you noticed any evidence of injury during the present year?

A. I have not.

Q. 57. Not in that entire section?

A. No, sir.

Q. 58. Did you notice through that section of North Georgia any evidences of sufficient injury to do real damage, last year?

A. No, sir, I did not. I had a good garden, raised some mighty fine potatoes, cabbage, beans, and such stuff as that. Then, I have been from my place over to Blue Ridge, and down the line to Copperhill, over the railroad. I went from Mineral Bluff through the country, over to Copperhill.

Q. 59. Do you know whether this year book of the Morris Fertilizer Company is distributed over the state of Georgia?

1049 A. I think so. I know it is distributed over Fannin County there.

Mr. DRAKE: I except to that question and answer as being irrelevant.

Exception overruled, and appeal prayed and granted.

A. (Continuing:) Anderson is a competitor of mine and hands it there, and outside of that, I do not know.

Q. 60. You refer to the book, or pamphlet filed as exhibit number one to M. B. Roger's testimony.

(Witness examining book.)

A. What is the question.

Q. 61. I say, is that the pamphlet you refer to, as being exhibited over the county?

A. Yes, sir, yes, there is a lot of that stuff distributed over Fannin County.

Q. 62. Who sells that fertilizer?

A. Mr. Anderson, John W. Anderson. I sell Armour's.

Q. 63. Are those pictures there of that corn crop, a fair reproduction of it?

A. I think so, yes. Now, Mr. Addington has wheat on that ground, so he tells me, this year.

Q. 64. Have you seen the wheat?

A. No, I have not.

Q. 65. You do not know anything about it, only what you heard?

A. No, just what he told me.

Mr. DRAKE: We except to the book and picture, as not being identified as the picture of that corn, and as to the book being irrelevant to the issues.

Exception overruled, and appeal taken.

Q. 67. Do you know Mr. Addington?

A. Yes, sir.

Q. 68. Is that his picture?

A. Yes, sir.

1050 Q. 69. Did you see his corn crop, I believe you say you did?

A. Yes, sir.

Q. 70. Does that look like Mr. Addington's corn crop?

A. Yes, sir, that timber there shows back of it. I remember it very well being back of it.

Cross-examination.

By J. A. DRAKE:

Q. 71. Mr. Dickey, you say that is a picture of that corn field?

A. Well, that is my opinion.

Q. 72. Did you see that picture made?

A. No, sir, I did not.

Q. 72. You do not know who made it?

A. No, sir, I do not.

Q. 73. You cannot swear as a matter of fact, that this picture is one of that field?

A. No, but it resembles it, looks like his corn field. That corn, and where he is standing, everything shows up like his corn. He told me, and showed me the picture before it was put into this book.

Q. 74. You say you were around over the county some last year, and you saw some damage?

A. Very little.

Q. 75. What was that damage to?

A. What I seen was some of the leaves of the trees turning brown, I did not see none on the vegetables.

Mr. FOWLER: Complete your answer, what was it you were going to say?

A. I said I had a good garden of my own. I raised cabbage, peas, onions, and other things.

1051 Q. 76. How many times last year, would you say that you smelled smoke over there in your neighborhood?

A. I could not tell you.

Q. 77. About how many?

A. I do not know how many, I did not take any notice about it, I travelled over there several times, I could not tell you how many.

Q. 78. This year, how many times have you seen and smelt it?

A. I do not know how many times I have seen it, I saw it some two weeks ago, about two weeks ago I noticed smoke over there some, some one called my attention to it.

Q. 79. Mr. Dickey, don't you know that July and August is the time that this smoke does the worst injury?

A. Well, I don't know about that.

Q. 80. To the timber?

A. The timber shows worse than they do in the spring, but the smoke, I should think, to the rye and wheat and garden stuff would be worse in June, and the latter part of May and June.

Q. 81. Well, that is, I suppose a fact, but as to the timber, you say it is worse in July and August?

A. You can see more sign of damage then than you can now.

Q. 82. And it does not show up this early in that kind of stuff?

A. Sometimes I have seen it show up pretty early, but I cannot give the exact date.

Q. 83. Now, have you seen smoke over there, as many as half a dozen times this year?

A. I do not think I have.

Q. 84. Have you seen it five times and smelled it?

A. Well, I could not say about that, I don't hardly think I have. I don't believe I remember ever smelling or seeing it over there more than once.

1052 Q. 85. What date was that?

A. Something like two weeks ago, eight or ten days ago, something along there.

Q. 86. Was there a very noticeable amount of it there on that date, to the smell?

A. Right sharply. The effects of that will show up on the timber later on, I suppose. It shows up pretty quick though.

Q. 87. After it strikes it and especially on young vegetables, it shows up quicker?

A. Yes, sir, it shows up in vegetables quicker than it will on timber.

Q. 88. I will ask you Mr. Dickey, if that smoke don't strike the top of the timber, and effect it sooner than it will that which is not protected by foliage all through there?

A. Yes, it will commence at the top of it.

Q. 89. And if a garden should be protected on all sides by trees, or on one side, would not that protect the garden from the effects of it more than it would if it was exposed?

A. I suppose it would. I could not say.

Q. 90. Have you been over Blue Ridge in the Flat Creek country and inspected the oat crop in there?

A. No, sir, I have not.

Q. 91. Have you inspected the oat crop around you this year?

A. The oat crop is mighty sorry. As it was dry, it did not do any good.

Q. 92. Don't you know as a matter of fact, if they have abandoned practically raising oats in that neighborhod, on account of this smoke?

A. I do not know that, though they raise more corn than rye. That never was a good country for oats. They raise a heap of rye and corn in there.

1053 Q. 93. Don't you know they do not raise oats at all, because they are so susceptible to the smoke?

A. I do not know. I pay more attention to the rye crop than anything else. We ship a good deal of rye.

Q. 94. Do you know of a single crop of oats in that whole Flat Creek country?

A. I do not know of any.

Q. 95. Don't you know that the thrashers that go through there, do not thrash enough oats to take account of it?

A. I do not know about that.

Q. 96. Don't you know, as a merchant, you cannot buy oats in that country?

A. I hardly ever buy oats, we generally have them shipped to us.

Q. 97. And don't you know that it used to be the thrashers would thrash many oats through that country?

A. I do not know about that. I never did thrash any.

Q. 98. Were you ever with the thrashers in there?

A. Very little.

Q. 99. Away back yonder fifteen and twenty years ago?

A. I do not know. I could not tell what they done about that.

Q. 100. How long have you lived in that neighborhood?

A. I have lived there all my life.

Q. 101. How long have you been a merchant, Mr. Dickey?

A. Twenty-two years.

Q. 102. Did you ever back in the first of your mercantile experience buy oats at that point?

A. No, sir, I generally had my oats shipped from away from there.

Q. 103. Did you ever see oats growing in that country, at that time?

1054 A. Yes, sir, some, and there are some growing there now.

Q. 104. Did not they grow a great deal more oats then than they do now?

A. I could not say about that.

Q. 105. Who is raising oats there now?

A. I could not tell you.

Q. 106. How many fields have you seen this year?

A. Why I have noticed three or four patches.

Q. 107. Well, who owns any of those, you know everybody in that country?

A. Mr. McCann owns some.

Q. 108. Which one?

A. H. M. McCann.

Q. 109. H. M. McCann?

A. H. M. McCann.

Q. 110. Where does he lives?

A. He lives in Mineral Bluff, in the edge of Mineral Bluff.

Q. 111. Who else?

A. I could not say, but I have heard people talking that this season's oats were mighty sorry, but Mr. McCann says he has a good patch, and people are talking about them that says they are. I can see them from the public road, but I have never been in his patch.

Q. 112. Mr. Dickey, did you ever make an affidavit in the original case, this original case?

A. In this case?

Q. 113. For the copper companies in 1906?

A. I do not think I did. I am not positive, but I do not remember if I did.

Q. 114. Well, when the smoke damage was the worst in that country, I will ask you if then there were not parts of the country where they would have good crops?

A. Yes, sir.

1055 Q. 115. And in some places it was much worse affected than in others, was it not?

A. I think they were, yes, sir.

Q. 116. And that is the history of that smoke damage?

A. Yes, sir.

Redirect examination.

By J. A. Fowler, Esq.:

Q. 117. What effect does dry weather have on the oat crop?

A. When it is dry weather, the oats won't grow, and get any height*h* up there, it is sorry.

Q. 118. The oat crop in dry weather, usually takes the rust, doesn't it?

A. I do not know about that. They do not grow up and make any height so as to do any good though. The oat crop in our country, never has been good.

Q. 119. Is North Georgia land well adapted to raising heavy oats?

A. No, sir.

Q. 120. And it is a visible crop for that section of the country?

A. I do not think so. I farmed some before I went into the merchandise business. I bought some oats, and sowed them.

Q. 121. Did you ever make any returns out of them, of any value?

A. No, sir, it did not pay me.

Q. 122. An oat crop is the least profitable crop, unless the ground is especially adapted to it?

A. Yes, sir.

Further deponent saith not.

Sworn to before me this 20th day of June, A. D., 1914.

——— ———,

Clerk & Master.

1056 The distance travelled by this witness from his home to the place of giving his deposition was a total of 272 miles, including his return, or 136 miles in each direction.

1057 J. H. QUINTRELL, the next witness called, being first duly sworn, upon direct examination deposed as follows:

Direct examination.

Questions by J. A. FOWLER, Esq.:

Q. What is your age, Mr. Quintrell?
A. I will be fifty four years old the eleventh day of November.
Q. Where do you live?
A. I live at No. 20 Copper mine, it is in Fannin County.
Q. Georgia?
A. Yes, sir.
Q. How long have you lived in that section?
A. I have been, well, I was principally raised in Fannin County. I have lived there, my father moved there when I was a boy twelve years old. We lived there until the closing down of the mines, back years ago, and I left there and stayed away until the mines started up again, and I have been living there now twenty-two years.
Q. Did you ever work for the Ducktown Company?
A. Yes, sir.
Q. When did you work for them?
A. I worked for them, it has been twenty years ago.
Q. Have you worked for them since?
A. No, sir.
Q. Did you ever work for the Tennessee Copper Company?
A. Yes, sir.
Q. When did you work for them?
A. I worked for them nine years ago. It has been nine years. Well, I will say eight years since I have worked for the Tennessee Copper Company.
1058 Q. Have you been living right around the Tennessee Copper Company's plant?
A. Well, I have been living for twenty-two years within a mile and a quarter of where the smelter plant now stands.
Q. Do you know when they installed the acid plant in the Tennessee Copper Company plant?
A. In the D. S. C. & I. Company plant, or the Tennessee Copper Company's plant?
Q. I mean the Tennessee Copper Company's plant?
A. In 1908.
Q. Do you know whether or not since that time they have enlarged the capacity of the acid plant?
A. Well, they have enlarged them, they have built some two or three more chambers, to their plant.
Q. How many chambers did they first have?
A. They first built two chambers.
Q. That was in 1908?
A. In 1908.

Q. When did they make the next increase?

A. I think the next year they made some to it, but I would not be positive.

Q. When did they make the next increase?

A. Year before last they made their last improvement.

Q. How many chambers are they operating now?

A. They are operating six chambers.

Q. So they begun with two, and have increased up to six?

A. Up to six, yes, sir.

Q. They have had six for how many years now?

A. For two years.

Q. Have you been through the plant at Ducktown?

A. I never have been through the plant at all, I was up to the plant, I was up to the plant a month or so ago, but never have been through the plant.

1059 Q. You have been in the acid plant?

A. Yes, I have been at the plant, I never have been through the plant, to tell anything about how it is inside.

Q. Mr. Quintrell, How far do you live from the plant of the Tennessee Copper Company?

A. Two miles from the Tennessee Copper Company's plant.

Q. How far from the Ducktown Company's plant?

A. Two miles.

Q. Do you own the place on which you live?

A. No, sir, it is owned by what is known now as the Southern Reduction Company, of Boston.

Q. Where is the mine No. 20, relative to your home?

A. It is about two hundred yards higher up on the hill above my house.

Q. State whether or not you had some pictures taken of the different localities right around near your home, there?

A. Yes, sir.

Q. When did you have them taken?

A. I had them taken in March—I had them taken in last March.

Q. Why did you have those taken?

A. Well, the reason why, just exactly why I did have these photographs taken, I noticed in our home paper whereby the State of Georgia had asked for and got a bill against the Company, an injunction bill, claiming that it was killing out all the forests, and vegetation, and I knew that it absolutely was not so, and that is exactly the reason I had those taken.

Q. Who did you have to take them?

A. I had a young man named Johnnie Sears.

Q. Was he the photographer there in Copperhill?

A. No, he lived in Georgia, up at Epworth, Georgia.

1060 Q. Did either one of the Copper companies have you do this?

A. Neither one gave me a dollar themselves, nor did either one of them know I was going to do it, until after I had it done, and carried them over and give them to Mr. Rennick. I never spoke to him about it until then.

Q. How long have you known this locality here represented by these pictures?

A. I have known it all my life.

Q. I show you picture number one. I wish you would state what particular locality that represents?

A. That picture there in 1900, Judge Howe purchased the property from some parties in Atlanta. This number one picture was an old field when he purchased the property in 1900, and when it was bought for mining purposes the field was turned out, and that growth of timber there on that old field has grown there since 1900, the year 1900 it was naked.

Q. That picture is introduced as evidence by the defendants, and marked as Exhibit No. 1 to the deposition of Mr. J. H. Quintrell.

Q. When was that field last plowed?

A. Well, I suppose that it was plowed the year before he bought it. I would not say about that. I would not say about the exact time.

Q. Was there any growth of timber whatever on that place in 1900, on that spot?

A. On this place yere, no, there was an old fence around it, when Judge Howe bought it.

Q. Where is the spot represented in the picture, with reference to the mine No. 2?

A. It is about two hundred yards from the mine.

Q. In what direction?

A. Well, it is kinder south, well, it is a field, north, it is rather north from the mine.

1061 Q. I show you picture number two. I wish you would state what spot is represented by that picture?

A. Number two, this picture here is taken where there was a heavy growth of timber when Judge Howe bought the property. He had it absolutely all cleaned off. Cut off all the growth of timber and used it for mining purposes. All that was used for mining purposes. At first my father was in charge of the mines. He used it for mining purposes, for the boilers.

Q. State what year that place was barren?

A. This was cut off, finished cutting in 1903.

Q. Was there any underbrush of any consequence at that time?

A. No, very little underbrush, because this lot of timber had been owned by some parties in Atlanta, and the old original growth of timber had never been cut off of it. While we have in our County most all of the timber that is in reach of Ducktown is what you might term it, secong growth of timber, for right after the war it was all cleaned off, and it has grown up during the closed season.

Q. Take number two——

Mr. Fowler: Picture number two is introduced by the defendant as Exhibit No. 2 to J. H. Quintrell's deposition.

Q. Since which year have these trees that appear in this picture number two grown?

A. Since 1903.

Q. Since 1903?
A. Yes, sir, since 1903.
Q. I show you picture Number three, and will ask you to state what particular point is represented by this picture?
1062 A. Number three. This is the photograph of our mine.
Q. You mean Mine No. 20?
A. Mine Number 20, a photograph of the mine. That is where our boiler house stands. This is a picture of the mine. We opened up shafts and sunk them in here, and all heavy timber around was absolutely cleaned off, and the growth of timber cut off that was large enough to cut off for the mines, and used then, and these trees have grown since 1903.

Mr. Fowler: Picture Number three is introduced by Defendant, and marked Exhibit No. 3 to J. H. Quintrell's deposition.

Q. I do not believe I asked you how far the opening represented in picture number two is from Mine No. 20?
A. It is a quarter of a mile, I guess.
Q. In what direction?
A. It is north.
Q. I show you picture number four. State what point is represented by that picture.
A. This picture is taken right down there, down the branch, it is mighty near due north from the mine. It is about, this picture here is north one-half mile from the mine.

Mr. Fowler: Picture number four is introduced by defendant, and marked Exhibit No. 4 to Mr. Quintrell's deposition.

Q. Since that date, since what date, has the timber represented in that picture grown?
A. Since 1903.
Q. I notice two or three old-looking trees. Were they there in 1903?
A. Yes, sir, some old scrub trees. They were there. Too rough for the wood-choppers to cut down.
Q. I show you picture number five. State what point is
1063 represented in that picture?
A. This picture is taken about one hundred, I suppose it would be two hundred yards below the mines, just below my dwelling house, where I live there on the property. Probably two hundred yards from the mines. Where this photograph was taken, when Judge Howe had it cut off, it was a heavy growth of poplar and oak timber, right here. That growth is now gone.

Mr. Fowler: Picture No. 5 is introduced by the defendant, and marked Exhibit No. 5 to the deposition of J. H. Quintrell.

Q. Since what period has the timber represented in that picture grown?
A. Well, about the same time as the rest of it. It was all cut off, the biggest part of all the timber was cleaned off in 1903, and off of all of it in 1904. We had to go to buying poles.

Q. What kind of trees are those represented in the picture?

A. There is pine trees there, there is maple, white oak, and red oak, all kinds.

Q. Have those maples at that point grown since 1903?

A. Well, they might have been there too small to have chopped. I would not say how that was.

Q. Mr. Quintrell, are those pictures a fair representation of the growth in the entire section around there?

A. Yes, sir. I had the pictures taken. I was with the man. I didn't take him back at the best places. Number one, there, shows the best picture, it is all forest that has grown in the old field, and that timber has grown up seems like faster than where we had the last timber cut off.

Q. I believe you say that was an old field in 1900?

A. Yes, sir.

1064 Q. State whether or not, Mr. Quintrell, there has ever been a time when the grown- of vegetation was entirely stopped in that section of the country?

A. No, sir, never has been.

Q. Mr. Quintrell, I wish you would state the difference in the rapidity of grown- of this timber from 1900, in the one picture, and the other four pictures of 1903, up until say, 1909, and its growth since that date?

A. Well up to 1909, I will say, in 1909 the smoke got over on the timber ever- now and then. It would come over and turn the leaves brown on the timber, and it had apparently stunted the growth of the timber, but since 1909 the acid plants have been put up, and this timber has taken on a new life, and is in, today, as healthy condition as any timber I find in all my travels around the country.

Q. Through what parts of the country do you travel?

A. I travel out in North Carolina. Last summer I was called five hundred miles from Ducktown to open up a copper mine for some New York people, down in towards the coast. And I travel in most all directions. In Alabama, all down among the furnaces, anywhere my company has property and operates mines.

Q. In consequence of this smoke damage in your section, in travelling over the country, do you, or not, observe the timber?

A. Yes, sir.

Q. Have you noticed the difference in the growth of timber elsewhere and this timber here?

A. Not a particle of difference. I could not tell there today, you could not tell, one particle of difference in our growth of timber there today and in any growth of timber that I have travelled through, with the exception of one thing, you will find in our neighborhood, for four or five miles around there, you will 1065 find trees and saplings, with the tops of them dead. They had started to die before the acid plants were put up, and I can show you there on a lot of land adjoining me, on what is called Nineteen, owned by a gentleman, bought for mining purposes, the gentleman lives in the country, I can show you thousands of young sapling trees on that today that started to die, the tops of the trees are dead, the tops died, but since the acid plants have been put up there is new *live* in them trees, and new branches have sprung up, and last week I was over there just walking around, generally, so I took my knife and whittled through the bark on some of the trunks of trees and they appear to be healthy and growing big, while the tops of these saplings are dead.

Q. Have you noticed any additional branches that have died in the last few years?

A. I have not.

Q. State whether or not the conditions which you have just described are illustrated by some saplings in picture three?

A. Yes, sir, you see these trees right there, now, you see these largest trees, the tops of them trees is dead, and there is new branches put out on the trunks of these trees, and they are living today.

Q. Now, in picture four, isn't the top of that scrub oak dead?

A. In this picture four, this died back when they were, I would judge, I would not say as to the exact year when it died, but my judgment is that it died when they were smelting ore green. It done some damage the year they smelted green ore, in our section of the country, a longer distance than I ever knew.

Q. Now, does not picture number two (Exhibit 2) show one or two old trees?

1066 A. Yes, sir, it does.

Q. You say the timber represented in picture one has grown entirely since 1900?

A. No, sir.

Q. That does not show anything of that kind?

A. No, it was an old field when Judge Howe bought it from some parties in Atlanta.

Q. Now, Mr. Quintrell, did you observe the crops through your section there for the last two years or three years?

A. I have. I have made, I have farmed a little every year myself, for sometime.

Q. State whether your father owns a farm?

A. He does.

Q. Where is his farm located?

A. It is a mile and a quarter east of the Tennessee Copper Company's plant.

Q. Does, or, not, the wind drift in that direction quite often?

A. Quite often.

Q. How large is his farm?

A. My father is dead. Now, we have something over four hundred acres *od* land.

Q. Is any part of it kept in cultivation?

A. Yes, sir.

Q. How much of it?

Q. We have thirty or I guess we have forty acres there now in cultivation,—forty acres, I guess.

Q. What kind of crops do you raise on it?

A. We raise corn, vegetables, and peas, the parties that live on the farm do. I believe, we have it rented out.

Q. Have you been in the habit of going through crops, and seeing their condition?

A. I have been through them, yes several times.

1067 Q. During last year, was there any damage to the crops on your place?

A. I would not say for sure. I was not on the place last year during crop time, but if there was any damage on it, I never heard it mentioned by the parties who lived on it. I never heard anything.

Q. How was it year before last?

A. It was all right.

Q. And how is it this year?

A. This year the crops, so far, are all right.

Q. Has the timber been affected on that place for the last two or three years?

A. No, not that we can tell.

Q. Have you observed the timber?

A. Yes, sir.

Q. Do you know whether or not, Mr. Quintrell, of any acid smoke having escaped from the acid plant during the present year?

A. Yes, sir.

Q. When did that occur?

A. It occurred on the eighth.

Q. The eighth of June?

A. Yes, sir.

Q. This month?

A. Yes, sir.

Q. I wish you would tell what you know about it.

A. Well, on the eighth day of this month I taken my daughter from where we lived over to Isabella to spend a week with her grandmother. I stayed in Isabella until twelve o'clock. At twelve o'clock I left Isabella to come back to Copperhill. Well, when I got in sight of the Tennessee Copper Company's plant, I suppose that was about half past twelve o'clock, it would be my judgment, I could see the fumes coming out of the big stack, and taking roght down 1068 towards Fighting Town Creek, right towards the Georgia State line.

Q. Was that towards Epworth?

A. Towards Epworth, towards the State line, and I know because I am acquainted with the smoke around there, all my life, I was satisfied in my own mind from the looks of the smoke that there was something wrong, though I did not know what it was.

Mr. DRAKE: I except to that evidence as being an opinion without anything stated on which to base it.

Exception overruled; appeal taken.

Q. Go on, Mr. Quintrell?

A. So I went on to Copperhill, across the river there, and I had got back down the river, there, right down even with the Company's plant, and turned up what is known as Fighting Town Creek, going home, and I noticed the plants and the little sprigs along, now the first thing that called my attention to notice that it was doing damage was a field of corn, and I went on up on top of the hill up to Fryetown, and saw the smoke had come over from the stack before I reached there, and it cleared off and the sun showed out, and it showed the effect of the smoke on my brother-in-law's garden, on his beets, and his beans. I could see that they were bit by the smoke.

Q. What time of the day was that?

A. That was about one o'clock, I guess.

Q. On Monday?

A. Yes.

Q. Monday, the 8th?

A. Yes, sir, Monday the eighth.

Q. Did any of that smoke escape from the Ducktown Copper Company's plant?

A. It did not, for I come——

Mr. DRAKE (interrupting): I except to the answer because he states no fact upon which to base any such an opinion; it is purely an opinion.

1069 Exception overruled, appeal prayed and granted.

Mr. FOWLER: Go on.

WITNESS (continuing): I come direct between the two plants from the ridge road, directly between the two plants, and it was as clear as it is right here, no smoke between them.

Q. Was the Ducktown plant in plain view to you?

A. Right down in the hollow below me.

Q. North of you?

A. North of me.

Q. And the other plant was south of you?

A. South of me.

Q. And could you see that big, high stack?

A. Oh, yes.

Q. Could you see the smoke coming out of it?

A. Yes, sir.

Q. Did you, or not, see the smoke going in the direction in which you saw the damage?

A. I saw it going in that direction, and as I went on and had started on up Fighting Town Creek, the smoke was taking in that direction from the stack, probably five hundred feet, maybe one thousand feet from the stack, it was hitting the ground.

Q. That is the timw when it parched the corn?

A. Yes, that is the time it cut the sun off of me, and made a shadow, and the smoke was going directly over my head, and shut the sun off of me.

Q. And that is the only time you ever knew of damage being done by the furnace this year?

A. That is all I know of and saw myself.

Cross-examination.

Questions by J. A. DRAKE:, Esq.:

Q. Mr. Quintrell, what is your occupation?

1070 A. Well, my occupation is, I am in charge of what is known as No. 20 Copper mine, known now as the Southern Reduction Company.

Q. That mine, as I understand you, Mr. Quintrell, is located in Fannin County, Georgia?

A. Yes, sir, it is.

Q. How far from the Tennessee State line?

A. Well, it is a fraction over half a mile. I could not say the exact fraction over the half mile.

Q. Is that mine being operated at this time, and if so, how long has it been in operation?

A. It is not in operation now.

Q. Not in operation now?

A. No, sir.

Q. How long has it been since it was operated?

A. It has been seven years.

Q. You are there in charge of that property, are you?

A. Yes, sir, I am.

Q. How much acreage has that Company got?

A. One hundred and sixty acres.

Q. One hundred and sixty?

A. Yes, sir.

Q. You have worked around and about these copper mines all your life, have you not, Mr. Quintrell?

A. I have.

Q. Are you not an expert on smoke, sulphur smoke, and the effect of sulphur smoke on growing vegetation?

A. I do not know that I am an expert. I have good enough sense to know when the smoke has killed a green leaf, or killed a bean, or anything of that kind.

Q. You are expert enough to know when smoke kills anything, are you not, you can also tell that after it has been killed?

A. I can tell when it has been killed by smoke.

1071 Q. You are expert enough to that extent, you know what smoke will do?

A. If you want to term it expert, it is all right.

Q. You are very much interested in the operation of these copper companies, are you not?

A. No, not any further than that right be done.

Q. You took enough interest to go out and take pictures without anyone soliciting you?

A. I done that much, simply because I knew as well as I knew that I was a living man, that the copper companies were alleged to have killed vegetation, and I wanted to show to the people of Georgia as much as to the Company, that probably had never been up there to see and were talking probably about their places being affected, that it was not killing out all the forests and vegetation of our country.

Q. You are not, then interested in the copper companies, or in the working of copper companies in any manner?

A. Yes, sir, I am.

Q. I will ask you if your living has not been made by and from and through these copper companies for the last several years, practically?

A. No, not altogether. Part of my living is every year now, for the past twenty years, I have more or less crop every year.

Q. When was it you made that trip of five hundred miles for some copper company?

A. Last year, Last June.

Q. Then you were in the employ of a copper company last year?

A. Yes, sir.

Q. And went to North Carolina?

A. Yes, sir.

1072 Q. Five hundred miles from home?

A. Yes, sir.

Q. How long were you in their employ last year?

A. I stayed out from there from June until, I think, about the tenth of July.

Q. How long have you been in the employ of any other coppe company this year?

A. I am in the employ of one right at this present time.

Q. Which one?

A. Of No. 20.

Q. *Have* long have you lived there on their property?

A. Right there, right at the mines, I moved there in December.

Q. How long have you been looking after their property fo them?

A. Six years, six years this coming August.

Q. Now, the smoke that you saw the day you speak of, you saw that coming from the Tennessee Copper Company?

A. Yes, sir.

Q. Which way was th*w* wind blowing?

A. The wind was blowing from the northwest.

Q. Towards the southeast?

A. Towards the southeast.

Q. I will ask you, Mr. Quintrell, if smoke had been coming out of the Ducktown Company's plant and carried up into the air, would not the same wind have driven it right over towards the Tennessee plant, and right on into the State of Georgia?

A. It would, provided they had been making any quantity of smoke, but the atmosphere was as clear, the sun was shining as bright, a good deal more so than it is today, between the two plants. There was no appearance of smoke to be seen between the two plants.

1073 Q. Didn't you state on your direct examination that there was no smoke escaping from the Ducktown Company that day?

A. No, sir, I did not say that.

Q. Was there?

A. Yes, sir, there was smoke coming out of their stack.

Q. Was it, or not, coming out and ascending into the air?

A. Well, it was when I passed coming up from—the last I could see of their plant, there was not smoke enough that it was rising one hundred feet, that you could tell one hundred feet above the stack that there was any smoke.

Q. There was a volume of smoke belching out of the Ducktown stack?

A. No, sir, there was not any volume; there was just a small quantity of smoke.

Q. A small quantity, what do you mean by that?

A. There was no large amount of smoke; there was smoke so that you could tell that there was smoke coming out of their smokestack.

Q. And whatever smoke you did see ascending into the air, would be driven by that same wind and carried on and be mixed with the Tennessee Company's fumes, and be carried on into the State of Georgia, would it not?

A. Well, I do not know. I suppose it might, provided it was making enough to reach that distance.

Q. Do you know enough about the smoke, Mr. Quintrell, to know whether or not the atmospheric conditions make a difference in the effect of the smoke?

A. No, sir, I do not.

Q. You do not know whether a certain damp, lowering day will cause the smoke to settle down worse than on a bright clear day?

A. Yes, I know that. I know when the atmosphere is heavy, the
smoke will settle down more around the plant and in our
1074 neighborhood than it will on others.

Q. And when it is a dry, clear day, it rises up and you cannot see it so well?

A. How?

Q. And it comes out and goes up in the elements and higher up than on a damp, heavy day?

A. That is right.

Q. Now, coming to this timber you have spoken of on these photographic exhibits: Exhibit one, you say that timber has grown since 1901?

A. Yes, sir, since 1901.

Q. How old is that timber?

A. That timber is eleven years old, probably eleven, thirteen years old.

Q. Wouldn't it be about fourteen years old?

A. Yes, fourteen years old, pardon me.

Q. It would be about fourteen years old, the biggest of it, at least?

A. Yes.

Q. Did you see any of the effects of smoke damage on that timber on Exhibit No. 1?

A. On that timber there, I do not see any effect at all, that timber there is pine and most of it is white oak.

Q. Pine and oak, white oak?

A. Yes, sir.

Q. Then this timber grew during the time of the very worst smoke in that country, did it?

A. It did.

Q. Have you been a witness for these companies at any time precious to this?

A. I never was a witness for them in any case before.

Q. Did you make an affidavit in the original case?

A. I did.

1075 Q. I will ask you if in that case you did not state that the companies were not doing any damage over there, that wa in 1906?

A. I did not understand you exactly. How is that, explain it again?

Q. Did you make that affidavit in 1906?

A. Which affidavit?

Q. The affidavit in this case, the original cause.

A. In this case about what?

Q. I meant, Mr. Quintrell, in the case where the State of Georgia was moving in the United States Court, originally, to close these copper companies down, and the State of Georgia took evidence by affidavit, and the copper companies took evidence by affidavit, and now, as I understand you, you made an affidavit for the companies?

A. No, sir, I do not know as I did. I never made any affidavi then that they were not doing any damage.

Q. Did you make an affidavit at the instance of either of the Copper companies?

A. No, sir, I do not know as I ever did.

Q. Well, if you have made an affidavit, you stated the condition were good in 1906?

A. In 1906, why, no, I never said they were good, because they were not good in 1906.

Q. Could you, Mr. Quintrell, not have exhibited this young timber that was six years old in 1906 as evidence that there was no damage?

A. In 1906 the smoke was coming on this timber, mighty near every day.

Q. You just stated it had not been hurt by smoke?

A. I do not know that I stated it had been hurt by smoke. The smoke might have had some effect on it when it fist got up.

1076 Q. Don't you know that the timber effected in these other photographic exhibits is old timber that is more than fourteen years old?

A. There are two trees there that are scrubby trees, and they were too rough for the wood-choppr to cut down.

Q. What picture is that you are talking about?

A. This is number four, the rest of that timber has grown up since 1903, since Judge Howe had it cut off.

Q. Is not the young timber there free from smoke damage?

A. It is free now from smoke damage.

Q. That is the question I am asking. When the smoke hits the leaves when is the first effect visible?

A. When the smoke first hits the leaves?

Q. Yes, sir.

A. It is, the first thing you can tell on that leaf, it is turned red around the edge of the leaf.

Q. It turns red around the edge?

A. Yes, sir, around the edge, and then it crisps up.

Q. Which way does the effect work, from there back towards the stem?

A. It works back toward the stem, and works out and strikes the tree, and it works down the tree.

Q. In other words, do you mean it works the top of the tree first, and kills the top?

A. It kills the top all over, and as the sap goes down, it kills the tree.

Q. I will ask you, Mr. Quintrell, if the big timber don't protect the little timber in it, and protects it from the effects of the fumes to a great extent?

A. Well, there is very little big timber in our neighborhood or country, outside of about three lots of land that I know of, there is no big timber whatever, it has all been cut off.

1077 Q. I am speaking of when there was big timber.

A. In the big growth of timber, in the old original growth, there was but very little undergrowth on it at all.

Q. Then you do not know what the effect would be that I asked about, about the big timber protecting the little timber under it?

A. No, not the exact effect.

Q. Do you know what effect a Mountain standing between timber and these plants has on the growth of timber?

A. I do not.

Q. Do you know whether timber is in better condition on the opposite side of the mountains facing the plant, or on the side facing them?

A. Well, the timber,—to illustrate that, I will just say that two years ago, I was across the mountains over on what is called Jacks River. I saw going out to Jacks River at what is known in our country as the Dunn Mountains, I saw timber, that is, timber nearest the mines, I saw timber out there that I was thoroughly satisfied had been killed in time by the smoke. After I crossed Frog Mountain, over on Jacks river, there is quite a difference, quite a lot of dead timber, and quite a difference in the location of the two timbers.

Q. Now, where the timber was the worst affected, was that facing the plant, more than the other?

A. Yes, it was.

Q. I believe I did not ask you for what copper company you made that trip into North Carolina?

A. It was called the Virginia, Tennessee & North Carolina Copper Company.

Q. Who is manager of that Company?

A. The manager of it is a man by the name of Mr. White, of Knoxville.

1078 Q. Where do they operate?

A. They were not really operating anywhere. They had an option on some property in North Carolina.

Q. They were making preliminary developments?

A. Yes, sir, they sent for me to come out and open it up, just to try it.

Redirect examination.

Questions by J. A. Fowler, Esq.:

Q. Has that Company with which you were working at that time any connection with either the Ducktown or Tennessee Company?

A. Not a bit.

Q. Speaking with reference to that timber, that you say you saw that had been killed when you made the trip two years ago. How long did that timber appear to have been dead?

A. It appeared to have been dead two or three years, three or four years.

Q. You spoke a while ago, in answer to a question propounded by counsel, of having made an affidavit. To what did you have reference?

A. Of having made an affidavit?

Q. Yes, you were asked if you had made an affidavit in this case, and you said that you had?

A. If I did, I made a mistake, because I have never made an affidavit for the Company, or against the Company. This is my first time to be up before the Court for either party.

Recross-examination.

Questions by J. A. Drake, Esq.:

Q. Did you ever sign a petition that was called a petition?

1079 A. I have signed several petitions asking the State of Georgia to permit the Ducktown Copper Company to run on.

Q. Well, that is what I referred to when I speak of affidavit.

A. I have done that.

Q. And were not those petitions sworn to?

A. They were not sworn to by me.

Q. Before a Notary Public?

A. No, sir, they were not sworn to by me.

Q. If they were sworn to, you did not understand so at the time?

A. No, of course they were presented to me at my request as to which I wanted, the mines to work or stop working.

Q. You said in this petition that they were not doing any damag at that time?

A. I do not think I was asked in the petition what I thought.

Q. Didn't this petition go on and recite that the copper companies were doing no damage in Georgia, and for that reason asked the State of Georgia not to close them down? And was not that at the very time you now say the damage was worst?

A. The petition that I signed, to the best of my recollection, I would not be positive, but to the best of my recollection, the petition was asking the Governor of Georgia not to close the mines, asking the favor of the Governor to permit the mines to operate.

Q. For what reason did you base that request?

A. On the reason that I thought the mines were a great deal more benefit to the State of Georgia than the little bit of farming and timber that we had in there.

Q. And you claim that if they had destroyed the timber, it would not be worth as much as the copper companies?

1080 A. The work the copper companies is doing, has given the men in work more than all the rest of Fannin County and what it has in it.

Q. From your standpoint, you think that they have a right to destroy all the North Georgia property in order to operate their mines?

A. I think if the companies had continued by not building acid plants, I do not think it would have been right to destroy the country, but the acid plants were built and it is doing our country no harm at this time.

Further deponent saith not.

Sworn to before me, this 19th day of June, 1914.

——— ———,
Clerk & Master.

This witness travelled a total of two hundred eighteen miles from his home to the point of giving his deposition and return, or one hundred *eighteen* miles in each direction.

1081 W. M. Bowron, the next witness, having first been duly sworn, deposed as follows:

Direct examination.

By W. B. Miller, Esq.:

Q. 1. Mr. Bowron, what is your age?

A. Seventy four, nearly.

Q. 2. Where — you born, raised and educated?

A. I was born in the north of England, educated at two or three different schools, and finally took my education at the University of Edinburgh.

Q. 3. Have you or not in your life made a study of the erection of sulphuric acid plants and the conversion of what is popularly known as sulphur fumes, or sulphur smoke, as generated up in the Ducktown Basin by the smelting companies, into sulphuric acid?

A. I was Assistant Chemist at the sulphuric acid works on the Tyne, and since then I have applied the knowledge I gained there under altered conditions to the gathering and collection of these sulphuric acid fumes in the Ducktown Basin.

Q. 4. The Tyne is a river in England?

A. Yes, sir.

Q. 5. Who is the accepted author *of* text writer, today, *for* if one there be, on generation, reduction, production of sulphuric acid, and its conversion, and the conversion of sulphur fumes into sulphuric **acid?**

A. George Lunge, who is Professor of Technique at the University of Zurich, in Switzerland.

Q. 6. Are you personally acquainted with Prof. Lunge?

A. Yes, sir, for some years I was his chief assistant.

1082 Q. 7. Where was he working at that time, where were you and he working?

A. At South Shields on the River Tyne at the sulphuric acid works.

Q. 8. How long since you came over to the United States?

A. The last time I came over in 1872.

Q. 9. What company, or companies have you been associated with as Chemist since coming to the United States of America, and for how long?

A. As Chemist I was with the Tennessee Coal, Iron & Railroad Company for three different periods totalling ten years.

Q. 10. What other service have you seen that would fit you to speak as to the generation of sulphuric acid as it is now generated, and the reclamation of the fumes, or the blighting effects of the fumes, as they, are generated in the Ducktown Basin, by the Ducktown Copper Company and the Tennessee Copper Company?

A. I was familiar with the region from the fact that I was buying up lands in North Carolina and I had to go through Ducktown going backward and forward, and being acquainted with the sulphuric acid industry, and having talked with the General Manager on the subject, conversion of its fumes into sulphuric acid I had strong interest in the subject besides which I was selected by the Governor of Georgia at one time, at that time the Hon. Joseph Brown, to go up and make a special report as to the facts of the whole subject. I made such report and presented it to him in 1910.

Q. 11. Were you selected by His Excellency, Governor Joseph Brown of Georgia, to go into the Ducktown Basin and study the conditions and make a report?

A. Yes, sir, as he explained to me that first of all he was told
by the copper companies th*at* were creating no nuisance,
1083 and on the other hand there was a large number of local
suits being prosecuted and asked me to go and get him the
exact facts on the whole subject.

Q. 12. For how — prior to the trip in furtherance of the commission undertaken under the direction of Governor Brown had you been acquainted with the Ducktown section?

A. Since 1903.

Q. 13. Had you spent any time up there before the commission of Governor Brown, taking observations of this country.

A. Yes, sir.

Q. 14. Give us, in a general way, the extent of your observations, over what period and how often?

A. I had been going there once or twice a month and there was a Mr. Chalmers at that time President of the Tennessee Copper Company, who frequently showed me all through and explained very kindly every part of the process to me, that was during the days of the roast heaps.

Q. 15. State whether or not at the time you were commissioned by Governor Brown to go up there you received also a commission from the then attorney general of the State of Georgia?

A. Yea, sir, the Hon. Mr. Hall.

Q. 16. Are you the same W. M. Bowron, who made an affidavit in the case which is now before the Supreme Court of the United States and in which you are now testifying?

A. I am, yes, sir.

Q. 17. You made that last February, or about that time?

A. Yes, sir.

Q. 18. State whether or not you filed at that time as Exhibit to that affidavit the original commission which you received from Governor Brown, and the Attorney General Hall, representing the State of Georgia when you went to the Ducktown Basin in 1910?

A. I did.

1084 Q. 19. State of you made a written report to Governor Brown, embodying the results of your investigation?

A. I did.

Q. 20. Is that report, or a copy of it exhibited to your affidavit, on file in this case, and in which you made last winter?

A. Yes, sir.

Q. 21. Did you have any other object in going up to this section at the solicitation of Governor Brown and General Hall, except to ascertain and truthfully report the conditions as you found them?

A. Absolutely none.

Q. 22. Does that report which is exhibited to your affidavit in this case honestly set forth the facts as you discovered them?

A. Yes, sir, it does.

Q. 23. On the occasion of this trip, did you inspect or were you shown through, and did you study in detail the construction of the acid plants of the two companies?

A. I did, I may say, however, that at that time the Tennessee Copper Company's plant was largely under construction. There was only one unit that was really in operation.

Q. 24. You mean the acid plant?

A. Yes, the acid plant. There was a large portion under construction.

Q. 25. How many units were there in all to complete the plant, according to the original design, how many units did it comprise?

A. Each unit was supposed to take care of one hundred tons of sulphur a day, and I think units was contemplated. I drew the attention of the manager to the fact that he would not take care of the sulphur fumes which were being emitted, and I asked if they were going on and complete the portion to take care of all
1085 the sulphur fumes. He said that was beyond his province, that he would have to let the Directors in New York settle that.

Q. 26. State if the volume of fumes that was being generated at that time is shown in your report?

A. Yes sir.

Q. 27. In what condition did you find the acid plants of the two companies at that time, commence with the Tennessee Copper Company and just tell relatively what the condition of that plant was, and to what extent it was taking care of the sulphur dioxide that was generated and then that of the Ducktown Company?

A. Without giving the absolute figures which were included in my report there was possibly between a quarter and one third of the sulphur that was generated was being taken care of in the plant, the balance was being sent into the air at Copperhill. In the other case at Isabella, with two furnaces, only one was in operation and the acid plant was able to take care of all that was emitted when I went there, that without any announcement of my visit and object of my visit, and without any knowledge of my presence in the district. I first looked at the top of the stacks and found that there was no smoke, that they were absolutely clear of smoke, and the gas plant was taking care of all of it.

Q. 28. What was the working condition of the two plants as compared with each other, as to whether they were good, bad or indifferent?

A. The Tennessee Copper Company's, it was working fairly well, and in normal condition at the time of my visit. With the other plant at Isabella, it was working just absolutely perfectly. Mr. Hatch, the architect of the plant was in charge of it and showed me over it. It was in perfect working condition.

1086 Q. 29. You are familiar with the character of operations that were conducted at both plants at that time?

A. Oh, yes, yes.

Q. 30. Have you or not visited that section frequently since that time?

A. Yes sir.

Q. 31. Probably how many times have you visited that section during the last two years Mr. Bowron?

A. I do not remember exactly without going over my reference book, I would say five or six times.

Q. 32. Have you been there during the growing season and also during the off season, when vegetation was not growing?

A. Yes sir.

Q. 33. Did you ever have any other connection with the State of Georgia except when you were commissioned to go up there and report on conditions?

A. No sir.

Q. 34. Now, after your report was made to Governor Brown, and was filed and became a part of the State archives, I will get you to state whether or not the Ducktown Copper Company, after obtaining a copy of your report, called on you to go into the basin at subsequent times and report as to the conditions?

A. Yes sir.

Q. 35. And on all of those subsequent visits did you endeavor to ascertain whether any of the fumes emitted by the Ducktown Copper Company and generated by it, were sent into the State of Georgia to the extent that material damage was being done south of the Georgia line, and if so, tell what you did?

A. I went there and took with me a chemical apparatus and applied chemical tests, which would show up to one-forty-thousandth part of one per cent, I tested along until I kept going further and further away from the Isabella plant, until there was no 1087 sulphur at all from Isabella. On this map in red, which you have on the table.

Q. 36. Did you have with you a Government Map, issued by the United — Government, known as the Ducktown Special of the United States Geological Survey?

A. Yes, sir, as a part of my answer, I would say that on subsequent visits, with varying conditions of wind I tested down with this way with the northwest wind how far the Isabella smoke would reach toward the State of Georgia and found it stopped about a quarter of a mile north of Copperhill. There is a high range of hills behind Copperhill that operated to stop it.

Q. 37. Did anyone accompany you at the time you made the observations with the chemical apparatus which you have just referred to?

A. On the two occasions shown in yellow and red, the measurements were taken, Mr. Sherman Reese, was along with me and on the one that is up toward Stansberry Gap Mr. Center of Ducktown accompanied me.

Q. 38. Are you familiar with the section of country, have you a personal acquaintance with it yourself, Mr. Bowron?

A. Yes sir.

Q. 39. I show you a map issued by the United States Geological Survey on which is shown the vicinity of Copperhill and the territory for some miles adjacent in all directions. I will ask you whether or not the tracings on that map in red and yellow, and in dotted lines with ink are made by yourself?

A. Yes sir.

Q. 40. I offer that map in evidence as Defendant's Exhibit No. 1 to this witness' deposition. Now, Mr. Bowron, take that map and tell us what the tracings thereon in red represent?

A. They represent a determination of the exact boundaries at which no smoke was detected by the chemical tests.

1088 Q. 41. State whether or not that route was the route shown in the red tracings, was followed by you on May 27th and 28th, 1912?

A. Yes sir.

Q. 42. You say you had with you an apparatus at that time for testing as to the distribution of sulphur fumes from the Ducktown plant at Isabella?

A. To catch them from wherever they came from. Do you wish me to describe it?

Q. 43. Yes.

A. First of all I got some solutions and prepared them with distilled water and chemically pure chemicals, and took a half gallon fruit jar and moistened it on the inside with a solution of hydrate of sodium, and exposed that four minutes to the air, allowing it to fill with the air with acid fumes. The acid fumes would have at once been taken up by the sodium hydrate. After being so held to catch whatever fumes there were, then bromine was used to concentrate and oxidize whatever acid there was in the hydrate of sodium. After that a little diluted hydrate,—hydro-chloric acid was added to the sulphide and then a chloride solution was used, which had the effect of drawing down at once a white percipitate in case any sulphuric acid was present. The test was entirely negative at certain distances from the plant, as shown by the red lines, there was no intimation of any gas.

Q. 44. At what intervals were these tests made in this way, as indicated by these red lines?

A. At irregular intervals, because I found you hardly ever get anything down in the extreme hollows, but they were made about a quarter of a mile apart.

Q. 45. State when the wind is blowing, whether or not there is a disposition of the fumes generated at one of these smelting plants to drift with the atmospheric currents?

1089 A. Undoubtedly.

Q. 46. In making these tests, how did you manage to ascertain definitely, and by your situation, whether any fumes were being eliminated beyond the confines of the red lines, having regard to the atmospheric currents?

A. The atmospheric currents carry the smoke, and we went to where there was any evidence of any character of smoke and we would stop as indicated by the red lines.

Q. 47. State what those red lines indicated on your map, at that time?

A. Absolutely no gas impregnation of the air.

Q. 48. Was it possible for sulphur fumes, or any fumes generated by the plant at Isabella to be destructive or harmful to vegetation beyond the territory indicated by these red lines on the map?

A. I could not see how they could have been destructive, because there was no gas.

Q. 49. What do the yellow lines indicate on the map that you have filed?

A. At the time the red lines were made, the wind was somewhat from the southeast, and with the altered conditions of the northwest wind it would blow the smoke towards Georgia. It became expedient to ascertain the exact distance the gases went into that territory under the new conditions, so I made tests with extreme care, following out the yellow lines, and finally they came out about the Davis Mill Creek, as shown on the map; beyond that I did not go, it being a very hilly country. I reached the point marked here 1,700 feet, I went along on top of that mountain without making tests.

Q. 50. In your opinion, was it possible for the fumes from this plant, if they had been escaping, to have travelled to Georgia 1090 and injured or destroyed vegetation without any sign at and along the route described by these red lines?

A. That would be practically an impossibility.

Q. 51. It is maintained, as I understand, by the State of Georgia, in this controversy that when the winds are from the northwest, that the fumes that are emitted by the Ducktown plant drift down into what is called the Flat Creek section, or the Hothouse section of Georgia and injure the vegetation and crops. Now, if such be the case would or not, speaking from your experience and observation, and of the facts there as observed, and likewise your knowledge acquired elsewhere, would or not the effect of those fumes be manifest along that range of hills which you say intervene between Isabella and the State of Georgia as you travel southeastwardly from Isabella?

A. The question is largely hypothetical. I do not know the Flat Creek country, but I have been on Hothouse Creek and no more luxuriant vegetation I have never seen in the mountain districts than that was, and at this place a high mountain intervenes between that and the copper plants.

Q. 52. Hothouse Creek appears to be in the State of Georgia, and to the southeast of Ducktown?

A. It is southeast.

Q. 53. You say you have been down beyond the Hothouse section?

A. Yes.

Q. 54. Have you or not been through that section extensively in the last three or four years?

A. Yes.

Q. 55. Now, what conditions did you find there as regards the crops and forestry?

A. I know when a tree is in perfect good health, but whenever it gets to be unwell, I do not know what is wrong with it. But the crops were looking well, and unusually well as compared with the balance of the country.

Q. 56. What did you note with reference to the color of 1091 the foliage and what appeared to be the condition of the forest?

A. The forest in young growth was light green, its normal color and the ordinary crops were dark green, that was indications of absolutely normal health.

Q. 57. About when were you last through there Mr. Bowron?

A. I have not got it marked down here, but some time this year.

Q. 58. Can you tell me the difference in altitude between the tops of the two stacks, the one at the Tennessee Copper Company's plant, at Copperhill, and the other at Isabella, being the plant operated by the Ducktown Copper Company, and if so what is it?

A. The top of the Copperhill stack is about 1,885 feet, the stack itself being 325 feet high upon a base, which is some little distance above the river, 1,620 feet to the base of the stack. The stack at Isabella is about 1,670 feet,—No, 1,680 feet, and the top of the water tank which is the highest point is 1,690 feet.

Q. 59. Are those elevations that you have given, those extreme elevations above sea level?

A. Yes sir.

Q. 60. What is the difference in height?

A. The Copperhill stack is 195 feet higher than the top of the stack at Isabella.

Q. 61. State whether or not the heights of these stacks increase the velocity with which the fumes are emitted from the tops of these stacks when the plants are in operation.

A. Yes sir.

Q. 62. What have you to say as to the temperature at which the fumes would be emitted from the tops of these two stacks, which would be the hottest when let into the air?

A. The Copperhill would be the hottest, because it is of fire brick and has no opportunity to cool from the time it leaves the
1092 furnace as against a stack made of sheet steel, which is a thin metal and which has a cooling effect of the atmosphere all the way up.

Q. 63. The one at Isabella is made of sheet iron or sheet steel, and the one thing in itself would help to cool the smoke as it comes out?

A. Yes sir, and being seven feet in diameter, and sixty feet high at Isabella.

Q. 64. What is the probable diameter of the 325 ft. stack at Copperhill?

A. Twenty feet.

Q. 65. You say it is lined with fire brick?

A. Built completely of brick.

Q. 66. Does that stack hold the heat until the fumes are expelled from the top?

A. Yes sir.

Q. 67. State whether these two stacks, substantially as they are, have been in constant operation since 1906 when the Tennessee Copper Company's plant was blown in?

A. Continually with the exception of short stops for repairs.

Q. 68. Now, state from your knowledge whether or not there is a chain of hills that intervene between the smelting plants of these two companies?

A. Yes sir.

Q. 69. What is the relative height of those hills as compared with the stack of the Ducktown Copper Company, I mean the top of the stack?

A. It is about 1,700 feet above sea level, in the highest point of the ranges between Isabella and Copperhill and the top of the stack is 1,885 feet approximately at Copperhill, so that makes it 185 feet higher than the ridges.

Q. 70. Are the sea level elevations shown with substantial 1093 accuracy on the map, a copy of which you have filed as an Exhibit to your testimony?

A. They are. They are close, inasmuch as that was the secondary, taken from the old original sheet which was rather crude with regard to elevations but there was subsequent triangulation, and with that all these levels run and corrected, I know some of the parties that were conducting that survey and these were all put in as the Ducktown Special Sheet, and I may assume that they are fairly accurate.

Q. 71. A short distance from Isabella, I see shown on this Government map, and just westward from that red line, the prevailing hills start from Isabella to Copperhill on the intervening mountains or hills there is 1,743 feet high, does that agree with your elevation at that point?

A. Pardon me, I did not catch the point that your question refers to.

Q. 72. I direct your attention to the map, and will ask you if the height shown in this map corresponds with your idea of the hill that intervenes between the two plants.

A. Yes sir, I remember the hills there; it is one just west of the old road.

Q. 73. Now, travelling almost eastwardly from there I notice the elevation *is* given between the red line and the yellow lines on your tracing is 1.743 feet?

A. Yes sir.

Q. 74. Is that in keeping with your recollection of the range of hills, as to the height?

A. Yes sir.

Q. 75. Leaving Isabella and traveling southwardly along the line of your yellow tracing, I note the figures 1,789, a distance of probably a mile away from Isabella, what does that represent or 1094 indicate on this Government map?

A. It represents one of the high points on the range following the regular road, the Morgantown road, or beyond the Morgantown road.

Q. 76. Traveling still further easterwardly along that route, I see the figures 1800, what do those figures represent?

A. One of the outl*a*ying ranges of the Appalachian Ranges.

Q. 77. Then, do I understand or not, that the intervening chain of hills surrounding Isabella is from 1783 to 1800 feet above sea level ?

A. Yes sir.

Q. 78. So, if the fumes from that stack would drift off down into Georgia southwardly they would have to climb these hills and drop down into Georgia?

A. Oh, no, they would drop down further than that, the fumes emitted from the Isabella stack, they would drift down into this branch of Potato Creek, and next they would have to go over some hills about the height you have mentioned or pass through the low places, possibly 1700 feet, then down in the Davis Mill Creek section.

Q. 79. State, if from your experience and observation fumes take that course, and whether or not it is reasonable or probable that the fumes emitted from the Ducktown stack would travel that route and do substantial damage?

A. According to my observation, they do not get even as far as Copperhill, and consequently do not reach Georgia.

Q. 80. Assuming that any substantial damage has been done south of the Georgia line during the past two or three years, in consequence, and since the Isabella acid plant has been put into operation, I will get you to say which of the companies you attribute it to, and why?

1095 & 1096 A. I should say the Tennessee Company, from the fact that I have stood on the hills of Blue Ridge, about ten miles in Georgia south of the Tennessee line and seen the smoke come out of the stack and come right down over my head, down into Georgia.

Q. 81. Have you or not taken repeated observations of the operations, as normally conducted at Isabella?

A. Yes sir.

Q. 82. Now, speaking from your knowledge of these operations, your investigations of them, and your observations of the country, say whether or not in your opinion it is reasonably probable that any substantial damage is being done by the operations of the Ducktown Copper Company as normally operated at Isabella since the acid plant has been installed?

A. I would unhesitatingly say that it is practically impossible for the operations at Isabella to affect the State of Georgia in any way.

Cross-examination.

By J. A. Drake, Esq.:

Q. 1. Where do you live?

A. Chattanooga.

Q. 2. What is your present employment?

A. I am a consulting engineer.

Q. 3. For whom?

A. Myself.

Q. 4. Whose employe have you been in for the last two years?

A. I have started and built a railroad last year, and opened some ore mines, and am still consulting for them?

Q. 5. Have you not been in the employ of the Ducktown Copper Company?

A. No.

Q. 6. You made various trips to the Ducktown Basin at their instance since you made that report for Governor Brown, that you speak of?

1097 A. I have been in there, but I have not been in their direct employment, on their payroll, but as a consulting enneer I take whatever business offers, and as such I have such in-stigations.

Q. 7. That is what I mean, how many such trips have you made?

A. I do not remember now, five or six.

Q. 8. When did you make the first trip for the company?

A. Well, May 27th and 28th, 1912.

Q. 9. On that trip, what was the extent of your investigations, here did you go to and what did you do?

A. I made the chemical tests that I have described in my former swer to determine as to the extent of the smoke present, taking up e question of damage afterwards.

Q. 10. The next trip, when was that and what did you do?

A. I suggested to the management that it was a very onesided fair taking it when the wind was blowing the smoke away from eorgia direction and they said for me to come back at the time hen the wind was from the northwest blowing the smoke that ay, blowing it towards the Georgia line, and that trip was made on pril 12th, 1913.

Q. 11. When did you make the next trip after that, and what id you do on that trip in the way of investigation?

A. There was then a strong wind blowing from the southeast.

Q. 12. You mean the third trip?

A. Yes sir.

Q. 13. When was that?

A. I have not marked the date down, I think it was November f last year. The object of it was to see the distance that the smoke ould go with a high wind, and found that it went about two miles.

Q. 14. Then did you say the wind was blowing that day.

A. It was blowing strongly from the southeast and blow-
098 ing the smoke two miles away from Isabella, having crossed
over a ridge into Bushy Creek, and then drawn over into
nother branch of Bushy Creek.

Q. 15. In your investigation of that trip, you went northwest rom Isabella and Tennessee plant?

A. Yes sir.

Q. 16. When did you make the fourth trip?

A. In the spring, and we went down to the Hothouse and Wolfe Creek Districts.

Q. 17. You mean the spring of this year?

A. Yes sir.

Q. 18. Do you remember the month?

A. I have it on my notes, I have not got it here.

Q. 19. What did you do on that trip?

A. We went around and saw the vegetation was — absolutely lux-riant condition.

Q. 20. Did not you go then as a chemical expert and make dem-nstrations on that trip?

A. I made no tests at all, there was no object in making tests, here was absolutely no damage shown.

Q. 21. You are not an expert entimologist, are you Doctor?

A. No sir.

Q. 22. When did you make the next trip?

A. I have not been on any special trip since this, with the exception of one in the Jack River Basin, that was in the Spring.

Q. 23. That was what direction from these plants?

A. It is about south and a little west.

Q. 24. Now, on each trip,—On which trip was it you stood on the hill above Blue Ridge and saw the smoke from the Tennessee Copper Company coming over your head?

1099 A. That was the time I came up for Governor Brown.

Q. 25. That was two or three years ago?

A. That was 1910. I did not know whether the Governor's request, being an axtra territorial prder, it would be honored by these companies. I wanted to get all the information I could beforehand

Q. 26. Your investigation was made in 1910?

A. Yes sir.

Q. 27. If the Ducktown Company had been emitting any smoke at that time, which way would the wind have brought it, on that day you stood on the hill?

A. The same direction as the wind was blowing, from the northwest.

Q. 28. And is it not a fact that from the hill that you stood on, it is practically in line with the Tennessee Company?

A. Due northwardly. Just about from where I was standing it was somewhat, I would not say exactly due north.

Q. 29. Well, in a northerly direction?

A. Yes sir.

Q. 30. And would not you have to look directly through the Tennessee plant, and Tennessee smoke, if it was emitting any, to see the Ducktown company's stack?

A. I could not do it, because there is a high range of hills in behind the Ducktown plant, and you would have to go over it to look down.

Q. 31. But if the Ducktown Company was blasting out the volume of smoke in behind there would it not go above the hills?

A. It probably would.

Q. 32. And could you not, standing on the high mountain,—Were you not on a high mountain?

A. No, on a fairly high ridge.

Q. 33. Could you not from that high mountain look right
1100 down and see the smoke?

A. No sir, I could not. I tell you what I did from the highest point right in behind Copperhill stack, that is when — one of the highest ridges, I stood on that and purposely examined very closely to see if I could see the stack of the Isabella plant. You cannot, it is right down in the bottom of the basin.

Q. 34. State whether or not,—State on what hill you were standing?

A. Immediately north of the Tennessee Copper Company's plant

Q. 35. But, Doctor, that is not my question, Standing on that high mountain down there at Blue Ridge, ten or twelve miles away and looking down, could you not see the smoke coming from the

Ducktown Copper Company's plant while you were standing on that high hill at Blue Ridge?

A. I stood on that hill, and purposely investigated to see if I could see it, but it is in behind all the ridges and you cannot see in a quarter of a mile of it.

Q. 36. But, Dictor, does not the stack of the Ducktown Company come up to about a level with the hills immediately around it?

A. Yes sir, it is some lower, you cannot see it.

Q. 37. At what heat does the copper smelt, Doctor?

A. I do not remember that, I have got a note of it, but I do not remember off hand.

Q. 38. Well, give me as nearly as you can, as an expert, the heat they smelt copper.

A. Well, I will tell you right now, that the heat at which they smelt the copper is not as greater as it is in the reduction.

1101 Q. 39. Would not the smoke be as hot as the furnace when it got out?

A. Just about.

Q. 40. Would not the heat of the smoke have something to do with its going up and raising in the air?

A. Yes sir.

Q. 41. Would not the hotter the smoke is, the higher it would raise in the air?

A. It would undoubtedly. If originally hot, they are carried up on the same theory as a hot air ball-on.

Q. 42. Please tell me as nearly as you can if you cannot give any exact figures, how hot that smoke is when it first starts out of the smelter?

A. Roughly red hot.

Q. 43. Red hot, about how many degrees?

A. I do not remember.

Q. 44. About how many?

A. I cannot guess at it.

Q. 45. 1000?

A. It is undoubtedly over 1000 degrees.

Q. 46. You have been dealing with those acids ever since you were in England many years ago? ?

A. No, not in copper smelting.

Q. 47. Didn't you treat copper smelting and have to do with copper when you were in England?

A. I was with the sulphuric acid plants. I have been iron making since then.

Q. 48. Didn't you have to heat the sulphur to use in this plant the same was as out here?

A. We used practically the same thing they are using at the copper plant for getting the sulphur contents.

Q. 49. And is not, Doctor, the only difference in these two ways, the Ducktown Copper Company's ores have copper in *it* and 1102 the other ores are free from copper?

A. Largely so, although we occasionally use copper ores.

Q. 50. In the smelting of these sulphur ores in England, what kind of process did you use?

A. We do not smelt the ores, we keep them from smelting use the ore at red heat and burn the sulphur out.

Q. 51. You heat them?

A. Yes sir.

Q. 52. And how hot did you get it?

A. Red hot.

Q. 53. How long did you work at this plant?

A. A few years.

Q. 54. How much heat did you use in these plants to get the sulphur into a gas and turn it into sulphuric acid?

A. We purposely kept it red hot, so as not to fuse the slag.

Q. 55. What is red heat?

A. What is red heat. 900 degrees.

Q. 56. About 900 degrees?

A. Yes sir, visible red in day light.

Q. 57. What heat do they have to use to smelt copper in this operation at Ducktown?

A. I have just told you I do not remember.

Q. 58. Didn't you ever work in an ore plant similar to these at Copperhill?

A. No.

Q. 59. Didn't you qualify in your direct examination by stating that you had vast experience?

A. I have worked a good deal out and around, but I am not in the manufacture of Copper, but with regard to the sulphur ores and sulphur I do not know just the heat.

Q. 60. Did you claim to be an expert on sulphur fumes and ores?

A. Yes sir.

1103 Q. 61. Can you tell even approximately how many degrees you have to have it?

A. I do not remember because it was not material. I was going after the results.

Q. 62. It would have a good deal to do with how high these fumes would raise into the air?

A. The only thing, or the only way I can do that, is by the curves they make, the top of the tall stack being unsurmountable.

Q. 63. Is it not a fact that from plain simple observation, to stand there on any of those hills and watch the smoke stacks at Ducktown, can you not see that the smoke is going straight up when the wind is not blowing very hard, for two or three hundred feet?

A. At Copperhill, yes.

Q. 64. And then when it strikes the upper currents of the air, does it not drift off in some certain direction?

A. Whatever way the wind blows, that is the way it goes.

Q. 65. And if the currents of the air from the northwest, would not those currents of air drive this smoke out toward Georgia?

A. It would drift in the direction of Georgia.

Q. 36. And would they not mix and mingle with the smoke, if any were being emitted from the Copperhill plant?

A. No, sir, it would not.

Q. 37. If not, why not?

A. Well, simply because there is a peculiar condition there as applied to the Isabella plant. It is down, as I have described, in a hollow, in between two hills and the air coming up the creek, as soon as it strikes the plant and those hills it makes false currents, drifting upward and carries the smoke upwards and disem*m*inates it in the upper air, but it does not go as a coherent body, like the other does up above these false currents.

1104 Q. 38. But, my question was a hypothetical question and not one based on your personal knowledge. I asked you the question if the smoke and fumes from the Ducktown Copper Company's stack should be heated to 1000 or 1200 degrees heat, and it should rise up through the lower strata of the atmosphere, on account of that heat, two or three hundred feet high, and then the general bearing of the air currents should travel over those little hills in there would be a southeastwardly direction, it would be driven by the winds from the northwest, and at the same time the fumes were being emitted from the Ducktown Copper Company's plant, should be going up into the atmosphere, at that point, would not they mix and mingle with these fumes that were driven from the Tennessee Copper Company at Copperhill and all come into one body and go into the State of Georgia?

A. I could not answer that except by telling you that I have never observed such conditions as would make such a mixture, and I regard such a mixture as impossible.

Q. 39. At Ducktown, what kind of process do they use, Doctor?

A. The ore is put in regular mixture with the flux and is melted in the ordinary copper smelting process, by blast, and comes then to a matte, brought down to a matte and is then shipped.

Q. 40. I mean with respect to the furnace, the blast furnace, do they use a blast furnace there?

A. Yes, sir.

Q. 41. Is that the same process they use at the Tennessee company's plant?

A. I will partly show. The Tennessee Company figures to get ninety-nine per cent out of the ore by refining it. At Isabella they get sixty five to sixty six per cent out, the balance being retained in the slag.

1105 Q. 42. I was askin especially with respect to sulphur fumes.

A. That is what I say.

Q. 43. Is not there a different kind of draft used at the two places?

A. They use blowing engines in the furnaces, and in the one case the top of the stack is closed and the sulphur smoke goes right into the chambers and is turned into sulphuric acid.

Q. 44. Does not the Tennessee plant use this tall stack, Doctor, to get a stronger draft, while the Ducktown Company uses a smaller stack and more artificial draft?

A. They use artificial draft in both cases.

Q. 45. They use it in both instances?

A. Both get their draft by blowing engines.

Q. 46. They get the draft the same way at both places?

A. Stronger fan draft and that is what they have to use to keep their furnaces going. They use the same sort of draft at both places, approximately the same, the tall stack was put in for draft purposes.

Q. 47. Now, Mr. Bowron, will you please commence at the very beginning and describe in detail, from a scientific standpoint, the method of making sulphuric acid at the Ducktown Copper Company's plant?

A. The sulphur is expelled by heat from the ores, sulphate of iron which is in the copper ore as it is taken from the mines. Then it goes, passing along the flues into the chambers, it mixes then with hypo-nitrates acid *by* originated by putting in nitrate of soda plus sulphuric acid. That mixture gets cooled off finally, and is put in with a mixture of steam into the chambers.

Q. 48. What per cent of sulphur do they take out of these fumes?

1106 A. Practically all.

Q. 49. What do you mean by practically all?

A. They take all they can commercially extract with the exception of a very small percentage which goes into the slag of the furnace and a very small percentage allowed to escape in the method of manufacturing, and in the improved method we have now it is a very slight amount in the emission of smoke, in other words, it is not done with the closeness of the laboratory work.

Q. 50. Then all that blue hazy smoke belching forth from that sixty foot stack is not sulphuric acid fumes or sulphur dioxide?

A. I have not seen it except once, and I could not say that it was belching forth.

Q. 51. Well, then let us say boiling out?

A. That would be only a difference in terms.

Q. 52. Is there any difference in boiling out and belching out?

A. Not the slightest.

Q. 53. Well, coming out.

A. Well, sir the top of that stack is absolutely free from any smoke that has that appearance of containing sulphuric fumes.

Q. 54. Absolutely free you say. Will you please tell us, with all the tests that you have and the experience you have had with the manufacture of sulphuric acid, please tell me what per cent of the sulphur dioxide they are taking care of at that plant?

A. I have not investigated that, but I should say approximately thirty per cent in the matte and as much as they can collect in the sulphuric acid chambers, I should say that from ninety to ninety five per cent of the sulphur generated from the ore is taken care of.

1107 Q. 55. Why do you say there is thirty per cent in the matte?

A. Simply because it is put there. The first operation is not to make copper, it is to make the matte. The matte is usually shipped and goes through a second operation, which concentrates the matte still further into copper.

Q. 56. Don't they run theirs through the second time, through the second process, and sell it as copper matte?

A. Yes, sir.

Q. 57. What per cent copper is it?

A. I have no way of knowing that.

Q. 58. But you are speaking of that as having thirty per cent of sulphur, I will ask you if that is not the first matte?

A. No, from eight to fifteen.

Q. 59. What I mean, the matte they sell, how much sulphur is left in that?

A. I have never seen the analysis of that, but have the figures given me by Mr. Renwick when I was up there.

Q. 60. You do not know?

A. No, sir.

Q. 61 You do not know how much sulphur they turn loose or save in the matte, or waste, but all the sulphur is turned loose that is in the ore?

A. Yes, sir.

Q. 62. You do not know?

A. I do not, there are witnesses who will be able to tell you.

Q. 63. Doctor, what is the most practical way of finding out how much sulphur dioxide they are sending out into the atmosphere?

A. They are making a regular debit and credit system statement as to how sulphur there is in the ore, how much in the sulphuric acid they make, or percentage of sulphur in it, how much there
1108 is in the slag, and then the balance will probably be wasted.

Q. 64. You have never, have you, Doctor, to explain the situation at that plant from that standpoint?

A. I have not.

Q. 65. You do not know a thing in the world about their books or anything like that?

A. I have never been in their office and seen them.

Q. 66. And know how much they are wasting?

A. I never had access to their manufacturing data.

Q. 67. And you do not — how much acid they are making or how much copper they are turning out?

A. No, sir.

Q. 68. And you do not know from that data how much acid they are making and how much is contained in the matte and how much is turned loose?

A. I do not.

Q. 69. What process do they use at Copperhill in mixing their fumes, if you know, or have you examined their process in your examinations up there? enough to know about that, do you know about that?

A. I believe I do. I do not know whether it is regular information though, but they take it by means of fans, and they will make the acid, all the acid that they can sell to the trade without breaking the prices.

Q. 70. Doctor, that is not the answer; I am talking about the Ducktown Copper Company?

A. Oh, I thought you said the Copperhill plant.

Q. 71. At Ducktown, we have agreed to use the term Ducktown Copper Company in speaking of the D. S. C. & I. Company for short in this investigation, and for the other we refer to it as the Tennessee Company.

1109 A. What was your question?

Q. 72. The question was: How do they mix the gases, in the process they use, in the chambers at Ducktown, if you know?

A. Well, just the ordinary process I have described by the use of Hydrate nitrate, mixing that with the sulphuric acid gas, coming from the furnace and the presence of steam in the chamber carrying oxygen and it is fairly mixed in there and in this manner the acid is made.

Q. 73. And they use the same process at the Tennessee Company's plant?

A. Exactly the same.

Q. 74. That is about the same process they use everywhere.

A. The normal process used all over the country.

Q. 75. What, if any, is the difference between the sulphurous fumes issued fro*n* this plant and those issued from any other normal sulphuric acid plant?

A. I asked the question when I went up there for Governor Brown, what was the amount of acid at Copperhill, and I was told they had made no analysis and as I have not seen one from the Isabella plant it would be mere guess work.

Q. 76. You cannot answer that?

A. I cannot.

Q. 77. You do not know then the difference from this plant, this sort o*d* plant and an ordinary sulphuric acid plant?

A. I do not. I, do not think there would be much difference.

Q. 78. Coming back, Doctor, the investigation you made there chemically, on your first and second trips, I believe, was it not?

A. Yes sir.

Q. 79. You made one of those investigations north or northwest of the plant, and one southeast from the plant?

A. Yes sir.

1110 Q. 80. When the winds, as you stated were blowing in those directions?

A. Yes, sir.

Q. 81. Is that the map you had?

A. Yes sir.

Q. 82. I believe you stated that point south, coming this way, I believe you were coming towards Georgia?

A. Yes sir.

Q. 83. How did you get from the Isabella plant here?

A. Right along the yellow line, here it is.

Q. 84. How far is that point on the yellow line where you found evidences of sulphur fumes from the Isabella plant?

A. We did not find it any further than this mark, but I went up there to make sure that there was not any on top of the mountain.

Q. 85. It was over two miles?

A. No, it is about a half mile to a mile or about that. It is two inches to the mile. It is as far south as we went. (Witness measures the distance on the map).

Q. 86. You found none further than a half mile toward the Georgia line?

A. No sir, it run out then.

Q. 87. Would you not call that investigation purely local?

A. Yes sir.

Q. 88. Would you not rather attribute the evidence of sulphuric smoke you got along there, would you not rather attribute that to the gases that escaped from around the furnace?

A. Into the air?

Q. 89. Rather than those which might be emitted from the top of the stack?

A. Practically all the same, it is all in one basin, whether it comes from the stack itself or the furnace, it is all local, it has to
1111 get out of the basin.

Q. 90. Is it not true, that quite a quantity of gases and fumes of sulphur are emitted from around the furnaces and around the acid chambers that leak out?

A. The acid chambers do not leak.

Q. 91. Well, that come from the furnaces and when you are down around the plant cannot you smell it strong?

A. Yes, but relatively there is already any leakage at all, relative to the gases generated you will find that there is an exceedingly small leakage, if there is you can tell it right around the house.

Q. 92. These fumes that escape from around the furnace would be driven by the air right along these low ridges, and you would smell that if you found gases along the big road?

A. Yes sir, they will, they will all be confined in the basin until a rain comes along and they are washed down into the ground.

Q. 93. Would they stay there until the rain comes?

A. They usually do. They are so much heavier than the air that they settle down right around the ground.

Q. 94. Do they exist in the form of sulphuric dioxide?

A. No, more of sulphuric acid.

Q. 95. When it rains it is washed off of the vegetation and trees?

A. If there were any trees around there, it would undoubtedly injure them in the extremely restricted basin that the fumes occupy, but they would come off.

Q. 96. There are no trees at all on those ridges where you made these chemical tests?

A. No, there are no trees or anything except a close bunch grass, and all growing shrubs,——

1112 Q. 97. And everything of that nature has been killed?

A. Yes, sir, it is killed in the days of the old roast heaps, but is coming back, there is one of the prettiest peach archards you ever saw there.

Q. 98. And is it not a fact that peaches will live better than anything else in that country?

A. I don't know.

Q. 99. Didn't you observe that?

A. I know there are good peaches up there.

Q. 100. Don't you know that there are good peach orchards that were put out five or six years before the acid plants were installed?

A. No, I do not know. I was through there in 1903 and could not see any from the plants. The smoke was so thick.

Q. 101. That was local?

A. Yes, sir, local.

Q. 102. Would not building that stack up sixty feet high, and it being on an elevation of nearly 1700 feet, would not the smoke coming out at the top of the stack at the heat it takes to smelt the copper, you do not know how much that is, rising up there two or three hundred feet in the air, would not the effects of that smoke be carried out further into the air which ever way the wind was blowing than it would locally?

A. If the base of the stack was 1700 feet and it went up two or three hundred feet in the air it would have more distribution; but the base of the stack is about 1600 feet and the smoke where it goes out, does not go higher than twelve or fifteen feet above the stack.

Q. 103. Did you not state in your original examination that it was 1600 feet?

A. No, 1650 feet, to the top of the stack is 1680.

1113 Q. 104. Did you not give the top of the stack as 1690 feet?

A. 1690, I made a mistake if I did.

Q. 105. Now, with that stack at an elevation of 1680 feet, and those fumes rising two or three hundred feet in the air?

A. But they do not.

Q. 106. You say that is impossible for these fumes to not go more than a few feet high?

A. I have watched them on different occasions.

Q. 107. More than how many feet?

A. I should say not more than ten to twenty feet high.

Q. 108. Under any conditions of the atmosphere?

A. Under any conditions.

Q. 109. Doctor, as an expert chemist, what do you say the atmospheric conditions have to do with sulphuric acid fumes?

A. I will tell you in a second (referring to memorandum book) I will give you what it is in a moment, if you will let me find the place. The question is one that is of actual relative ratio, the diffusion at high temperatures vary, they are retarded. For instance if air is one, in the dif-usion, if air is 1 sulphuric acid is .68 at ordinary temperature, but if it is made at higher temperatures the dif-usion very rapidly decreases. In other words, if the sulphuric acid is at a very high degree in coming out, the dif-usion is a great deal less than at ordinary temperature. So, you see that is not a question that yes or no could answer.

Q. 110. As I understand, if these fumes are very hot they will cohere or hold together?

A. They will hold together.

Q. 111. And the colder they are the easier they will dif-use and scatter and vanish?

A. Surely.

Q. 112. And as these come out then at a very high tem-
1114 perature out of the top of the stack on a very hot day, they
would rise higher and hold together longer than they would
on a very cold damp day, would they not?

A. No, sir, in cold days the atmosphere is denser.

Q. 113. If not, why not?

A. I say the atmosphere is much denser on cold days in cold weather than hot.

Q. 114. Hot will hold these fumes together and cold will dif-use them, please explain why they would not hold together longer on a hot day than they will on a cold day?

A. They might hold together, but they would not ascend so high.

Q. 115. What is the weight of sulphuric acid gases, or sulphur dioxide?

A. Air weighs 1.29 ounces per cubit and sulphuric acid weighs 2.88.

Q. 116. Which is the heavier?

A. Sulphuric acid is about twice the weight of air.

Q. 117. But for the fact that it is heated it would not rise into the air at all?

A. No sir, it would fall right down to the ground if it was not heated.

Q. 118. I understand you to say you cannot give me the heat at which they smelt copper ores, at Copperhill?

A. I expect it is heated at both places to about the same degree.

Q. 119. What is it at any other copper plant?

A. I told you I did not know unless I referred to my notes.

Q. 120. You cannot even approximate it?

A. No, I could not.

Q. —. Would it be more than 1000 degrees?

A. No, I do not know.

1115 Q. 121. Doctor, do you know anything about the dif-usion of gases?

A. Some.

Q. 122. Please explain relative to a ton of sulphur gases being expelled into the air, how would it dif-use, and at what ratio?

A. I do not know about a ton, we do not measure it in that way.

Q. 123. Take such a quantity as you may wish and tell us.

A At normal ordinary heat the dif-usion would be 6/10 of one per cent.

Q. 124. What?

A. It would be six-tenth of one per cent, in other words, while air would be blowing through water and at the rate of one, sulphuric acid would be going at the rate of six-tenths.

Q. 125. Could you not tell me then, how much, if that gas was expelled from the plant at a certain heat, say six tons of sulphur dioxide per day, at what ratio would that be dissolved?

A. I should have to know the temperature.

Q. 126. Well, let us say at 1700 degrees, let us assume that the gas comes out of the stack and the copper is smelted at 1700 degrees.

A. That takes a little bit of calculation, I could not tell you off hand.

Q. 127. Please calculate and see what ratio to the air that would be?

A. I can tell you after dinner, I cannot tell you off hand, because some bit of a calculation, and it may involve references to a table of cube roots.

Q. 128. To speak in plain English, would it not be much smaller than at a low temperature?

A. Yes.

1116 Q. 129. Now, Doctor, has not most of the figures you have given in your testimony been from notes and books that you have in your hands at this time?

A. Well, no.

Q. 130. And not from your knowledge independent of the data you now hold in your hands and in your lap?

A. I have not quoted anything unless it is put in there as a quotation with the author given, to my knowledge.

Q. 131. What is the specific gravity of sulphur dioxide?

A. I will look at this again.

Q. 132. Do you have to look at notes to answer that question?

A. I look at notes for everything. I do not trust my memory any more. (Referring to note book) 2.247.

Q. 133. If the fusing point of copper is 1700 degrees how many times would sulphur dioxide be expanded?

A. I cannot answer such a question as that off hand, they are all questions of calculation.

Q. 134. Can you tell at what degree of heat it expands?

A. It expands at all times, commences to expand at each degree.

Q. 135. Can you tell at what degree of heat sulphur dioxide will expand?

A. At every additional degree—it will expand all the time.

Q. 136. At what ratio does it expand?

A. I cannot answer that, off hand. I have not memorized these tables.

Q. 137. I am asking you if it does not expand only .270 to every degree?

A. I say I cannot tell you, I rely entirely on my notes, not on my memory for figures.

Q. 138. Then your conclusions from your local investigations up there, and what you know as an expert from many years working in acid plants is that this plant is taking care of all its fumes?

A. Practically it is taking care of all its fumes.

Q. 139. That is what I mean, practically.

1117 A. These small escapes of gas are negligible quantities.

Q. 140. By that, you mean by practically, you mean they are negligible?

A. Negligible, absolutely.

Q. 141. They are not worth taking care of or noticeable?

A. They are worth taking care of, but they do no damage.

Q. 142. I am speaking from a commercial standpoint, you say they are negligible, are they worthless?

A. I said they are worth taking care of, and will be worth it if they could be retained.

Q. 143. Doctor, do you know enough about the injurious effects of sulphur dioxide on growing vegetation, to know about what per cent in the air would be injurious to trees?

A. I do not know. I simply know it by notes of other people. I have done a great deal of microscopical work, at times on leaf injury and things of that kind, but I do not know the percentages, it is quoted as being some alarmingly small percentage.

Q. 144. Don't you know that one part of sulphur dioxide to one hundred thousand parts of air will kill growing vegetation?

A. I do not know that as a fact. I assume it is correct, because I have seen it published and I have found,—but I have not found any damage to vegetation and I have not had to go into that.

Q. 145. Didn't you embody that in your report to the Governor of Georgia?

A. The copy only, as a quotation.

Q. 146. Only as a quotation?

A. Yes, sir.

Q. 147. And did you not state also in that report, and is it not a fact that one part of sulphur dioxide to one million of 1118 air is exposed any length of time to growing vegetation would be very injurious?

A. It would have an injurious effect of course.

Q. 148. And you know that the movement of winds and the direction of winds have a great deal to do with the radius of the damage done?

A. Undoubtedly.

Q. 149. I do not understand you.

A. Undoubtedly.

Q. 150. And would not the contour of the country and shape of the hills and mountains have much to do with it?

A. Yes sir.

Q. 151. And assuming that there was valley, and a break in the mountains leading southeast into Georgia, and assuming that the prevailing winds in the growing season are from the northwest into the southeast, would not that have a tendency to collect these fumes into one volume and drift them over into that valley between those mountains and with the winds?

A. Yes sir.

Redirect examintion.

By W. B. **Miller**, Esq.:

Q. 1. Mr. Bowron, you know that high chain of hills which i raised between Isabella plant and the Georgia line?

A. Yes sir.

Q. 2. And there is no use to assume otherwise, when you kno as a matter of fact that they are located there as on the Governme map?

A. No sir.

Q. 3. That is right?

A. The question I was just asked by the gentleman required spe ulating. The tendency would be to drift it down Brushy Creek then into the Ocoee which carries it into Tennessee and then into Georgia.

Q. 4. He asked you to assume that there is a valley where
1119 there is not one?

A. It is all full of assumption.

Q. 5. You knew the country before the plant was built and pu into operation?

A. Yes sir.

Q. 6. What is the difference since the plants have been placed in operation in that territory, south, southeast and southwest from Copperhill?

A. There is all the change in the world, because in the old days of the open roast heaps the sulphur eliminated from the plants a Copperhill and Ducktown, for all that district was a big nuisance that corroded everything that it touched.

Q. 7. Since the acid plants have been put in operation how is it'

A. There is an improvement from year to year, as the acid plant are being finished one unit after another and being put into opera tion, they are taking care of more acid every year. Their smok that is coming out from the chambers and going out from the tal stack across the hills grows less and less and at Isabella, the gas tha comes away from there is negligible absolutely.

Q. 8. Now, the top of that tower on the acid plant as I under stand, at Isabella, is taller than the top of the smelter stack?

A. Yes sir, the tower is.

Q. 8. What would have to be the condition of the atmosphere i the fumes were to belch up as it is expressed by the other attorney or boil up, to a distance of two or three hundred feet, can you con ceive of an atmospheric condition when the fumes would do that'

A. I have been in all parts of the world and have never saw th atmospheric conditions that would permit it.

Q. 10. When would these fumes rise to the greater height
1120 when the wind is blowing or in still weather?

A. I cannot conceive of the fumes rising, and at the same time drifting to Georgia. Now, in answer to that there might b some at the furnaces, but the relative small quantity emitted at the Isabella company would not allow it to go to any great height. The cooling of the stack and the atmospheric condition, and it being heavier than the atmosphere, it would naturally spread and precipitate at a very short distance. With the plant, the stack being twenty feet in diameter, a great big heat container, it would go to a great height, and would be in a condition to be driven away off down into the direction the wind was blowing.

Q. 11. Now, about the height that the fumes are sent by the operations at Ducktown, whether the winds are blowing or not, I mean at the Isabella plant.

A. It matters very little because the winds blow over the top of the hills and there are local conditions in the little valleys intervening to take care of the smoke. For instance, I saw brush smoke, where they were burning brush heaps, the wind was blowing northwestward, but the smoke from the heaps went eastward.

Q. 12. So, the fumes from the furnace wherever they were raised from, at Isabella, would be broken up, when they struck the chain of hills running down through there?

A. Absolutely broken up and settle into the basin.

Q. 13. State whether or not if you timed your visits for making your observations with the chemical apparatus, and the route of which are defined on your map, so as to go there and take these observations when the Tennessee Copper Company was closed down?

A. Yes sir.

Q. 14. That was when they were temporarily shut down for repairs?

1121 A. Yes sir.

Re-cross examination.

By J. A. Drake, Esq.:

Q. 15. Did you make an analysis of their ores up there at Isabella?

A. No sir.

Q. 16. Or Ducktown?

A. I took that analysis as given by them.

Q. 17. You were sworn in the case of Shippen Brothers Company against the Ducktown Copper Company?

A. I was.

Q. 18. I will ask you if in that deposition, if you did not state the per cent of sulphur in the Ducktown ores?

A. I might have given it, if I gave it to you, I took it from their own figures and not from mine.

Q. 19. I will ask you to refresh your memory, I will allow you to look at the deposition in that case and see if you did not testify to this:

"Q. Tell me how much sulphur there would be in that.

A. Twenty-nine per cent. Q. "

Q. 20. Did you make that statement there, Doctor?

A. I expect I did. If it is not a misprint, I think however, that it probable is 2.9 per cent, I remember the stenographer in the case saying that they had no way of showing the percentages of that sort and things on the typewriter.

Q. 21. And your statements in the report to the Governor of Georgia, which is on file in the Supreme Court of the United States is correct as taken from the figures given you?

A. By the officials in charge of the plant, I made no examination myself.

1122 Q. 22. Now, the first trip for the Governor in investigating the plant, what condition did you find the sulphur plant in?

A. Which plant?

Q. 23. The Ducktown or Isabella plant?

A. It was in operation. Everything was working perfectly well. Mr. Hatch, the architect of the sulphur plant was in charge himself, and it was working the very best it possibly could. There was absolutely no smoke there at the time and everything was entirely all right.

Q. 24. Since then, have they built any more acid plants at that place?

A. There is a portion of it incomplete, and with a Supreme Court verdict hanging over them, I do not think that they felt inclined to complete it.

Q. 25. Have they not done anything more toward putting in any more of these acid consumers, which takes care of nitre?

A. They have put in — or more towers for getting the nitre back to the plant, and also save the concentration.

Q. 26. And that is the only improvements they have made?

A. No, the improvement was without doing that. They shut down one of the two furnaces and are only generating enough sulphuric acid to be taken care of by the plant existing there now.

Q. 27. Are they just running one furnace?

A. Yes sir.

Q. 28. They have two furnaces?

A. They have two, they keep one in reserve.

Q. 29. Don't you know, as a matter of fact that they run two a lot of the time.

A. Yes sir, I have seen them.

Q. 30. When they run two, don't you know that they cannot take care of the fumes, or even pretend to?

1123 A. I do not know what would be the effect, but I know they largely take — of them, I have only seen them running the two furnaces on one or two occasions.

Q. 31. Don't you know they cannot take care of all of the fumes in that one acid plant?

A. Yes, but the Tennessee plant have seven and the Ducktown have only two.

Q. 32. Don't you know that under an agreement with the State of Georgia the Tennessee company does not run but two of those furnaces?

A. I have never read the agreement.

Q. 33. Please tell me the acid chamber space of cubic feet of the Ducktown Company?

A. I have not got the figures.

Q. 34. What is the cubic feet space of the Tennessee company?

A. I have not got the figures.

Q. 35. Just speaking in a common sense way, and roughly, what is the difference in size of these two plants?

A. The Tennessee acid plant is infinitely large*ly* than the Ducktown plant?

Q. 36. Would you not express it in figures, how many times larger, say four or five or six?

A. I don't know.

Q. 37. Did you ever test the smoke and fumes and gases coming out of the top of the Ducktown stack?

A. No sir.

Q. 38. You do not know what the per cent of sulphur is in those fumes?

A. I don't, they are very small.

Redirect examination.

By W. B. Miller, Esq.:

Q. 1. Mr. Brown, you say the Tennessee Company have
1124 several furnaces, do you know how many they have?

A. Seven.

Q. 2. Do you know any reason why — the State of Georgia wants to stop any damage done in that territory, why it would let the large Tennessee Company alone and jump on this little company?

Mr. Drake: I except to that question as being irrelevant, incompetent, impertinent, and as a conclusion.

Exception overruled and appeal taken.

A. I do not know the methods of the State of Georgia.

Further deponent saith not.

Sworn to before me this 20th day of June, 1914.

—— ——,
Clerk and Master.

(The noon hour having arrived, an adjournment was taken in the taking of these depositions until 1:30 o'clock P. M. of this date.)

(Pursuant to adjournment the further taking of depositions in this cause was resumed at 1:30 P. M. at the same place and in the presence of the same parties on this the 20th day of June, 1914.)

1125 W. F. Lamoreaux, the next witness, having been duly sworn, deposed as follows:

Direct examination.

By W. B. Miller, Esq.:

Q. 1. What relation do you sustain to the Ducktown Sulphur, Copper & Iron Company, called in this record the Ducktown Copper Company?

A. I am Assistant to the General Manager.

Q. 2. How long have you been connected with the company?

A. Since April 1905.

Q. 3. You were there then prior to the building of the acid plant?

A. Yes sir.

Q. 4. What is the difference in altitude of the tops of the stacks that have been operated by the Tennessee Company at *at* Copperhill and the Ducktown Company at Isabella, at the present time, and for some years past?

A. It is between 190 and 195 feet difference in elevation of the tops of the respective stacks.

Q. 5. I understand the top of the stack of the Tennessee Company is approximately 195 feet higher than the top of the stack of the Ducktown Company?

A. Yes sir.

Q. 6. Has that been so for some years past?

A. It has been so since approximately 1906, at the completion of the Tennessee Company's high stack.

Q. 7. State when the acid plant of the Ducktown Company was built and also when it was *out* into operation?

A. The ground was broken for the erection of that plant on the 8th day of July, 1908. The plant was completed and put into operation on the 11th day of June in the succeeding year, 1909.

1126 Q. 8. Before that acid plant was built, was there or not an experimental acid plant built by your company, near its present plant?

A. There was a ten-ton Castlycac plant built to experiment with for some thing over a year.

Q. 9. Before the building of the present one was commenced?

A. Yes sir.

Q. 10. What was the primary object of building that first one, to experiment with it?

A. Experiments had been conducted for years preceding with the hope of recovering the sulphur in the air, and we consulted with various authorities and architects on the subject of finding the most feasible ways and the experiments were finally abandoned in favor of the Chamber Process. The present plant is what is known as the Chamber Process Sulphuric acid plant.

Q. 11. Do you know approximately what was spent in experiments by the Ducktown Copper Company, in an effort to recover the sulphur dioxide?

A. Thousands of dollars in a number of years was spent in experimental work, previous to the building of the contract plant, and that plant cost in the neighborhood of forty thousand dollars and several thousand dollars more was expended in remodeling and working with that plant previous to the building of the chamber plant.

Q. 12. The Ducktown Company finally resolved the question as to the character of plant to be erected in favor of the chamber plant? plant?

A. Yes sir, that is correct.

Q. 13. Approximately what is the cost of the sulphuric acid plant, that you now term the chamber plant, of the present plant, and to build and keep it in operation?

1127 A. The cost up to the time the plant was put into operation, or up to the end of 1909 was approximately $600,000.00.

Q. 14. That does not include the repairs and upkeep since that time?

A. No sir.

Q. 15. Now, state when the acid plant was put into operation?

A. On June 11th, 1909.

Q. 16. Has it been operated continuously since?

A. It has been operated with the exceptions of a few occasions when repairs were made to the furnace, at which time the acid plant was not in operation.

Q. 18. I will get you to state whether or not the plant has been built and that investment made by the company in an effort to conform to the rulings of the Supreme Court requiring the company to build and equip, or at least giving it time to build and equip such a plant?

A. Yes sir.

Mr. Drake: We except to the question because it is leading.
Exception overruled and appeal taken.

Q. 19. Just state how that was?

A. As I stated previously, a great many years have been spent and a number of thousand of dollars with the idea of utilizing the sulphuric gases in the air, aside from the question of the sulphur smoke menace. At the time the threatened injunction was held over the company they made very strenuous efforts to discover and utilize the best scientifical knowledge with the idea of entirely eliminating the smoke nuisance, and that plant, the present plant was built more with that view than with the commercial view. In fact, at that time, it was doubtful whether it would be of any commercial value to the plant. After consultation with engi-
1128 neers and visits to other plants throughout the country, we were led to believe that there would be no income from the sulphuric acid plant.

Q. 20. I will get you to state whether you mean that would be, that there would be no profit?

A. That there would be not net profit, it would result in no dividend, or income to the plant, to the company, I should say.

Q. 21. State if you know whether the most scientific knowledge and attainment was commanded and exercised in the erection of that plant?

A. It is the best, the best builder we could obtain at that time was procured and the consulting engineer was employed.

Q. 22. By whom was the plant built?

A. The plant was designed and the construction was undertaken by N. L. Haynes of La Salle, Illinois, who bears the reputation of being one of the leading sulphur manufacturers along scientific lines in the United States. At the time his services were engaged he was employed in Germany.

Q. 23. What business was he engaged in in Germany at the time?

A. I believe in the sulphuric acid business at the time.

Mr. **Drake**: We except to that as being information only.

Exception overruled and appeal taken.

Q. 24. I understand then, he is a man of highest attainment in his line?

A. Yes sir, he is so considered throughout the United States.

Q. 25. From the time that plant was put into operation in June 1909, has it or not been a practical success?

1129 A. It has been a complete success.

Q. 26. At the time the ores were roasted in open heaps, was all the sulphur content driven out of the ores in the roasting?

A. It was not, no sir.

Q. 27. How was the remainder expelled, or was it expelled at all in making the matte?

A. The ore, after being roasted and allowed to cool was then transported to the furnace and smelted in the same type of blast furnace we now use. All the sulphur content was expelled by this means possible. The remaining portion went into the copper matte. A portions went into the slag and a portion went into the flue dust, besides part that ascended as elimental sulphur, or floride sulphur from the top of the stack and furnaces.

Q. 28. Has the Ducktown Company always had a stack or chimney to its selter, since you have been connected with it?

A. When I was first associated with the company they had several small stacks, the furnaces were not connected and the stacks were much smaller and lower, about 1907 the present stack was built.

Q. 29. What is the height of the present stack?

A. 70 feet above the base.

Q. 30. During the period of open heap roasting, state whether or not there was always a percentage of sulphur expelled from the tops of the stacks, the smaller stacks?

A. There was a portion of the sulphur expelled from them, due to the particles which remained in the ores which was taken out in the operation.

Q. 31. Has the Ducktown Company ever refined copper to the point of making copper pig, and if not, through what process is the ore put and what product is made?

A. The Ducktown Company has never made finished copper, or pig copper. The product or manner in which the copper is
1130 marketed to-day and has been since the plant has been in operation is in the form of copper matte, containing approximately from twenty to twenty five per cent sulphur. The matte consists of combinations of sulphide of iron and copper.

Q. 32. What is done with this matter?

A. The matte is sold and shipped north to Bessemer Convertible plants and electrical plants where it is reduced into its pure state, the sulphur content in the matter of course is shipped in that shape.

Q. 33. For a time did the Tennessee Copper Company refine the matter when it was manufactured by the Ducktown company?

A. They are at the present and have been for years and for a considerable period they were purchasing the matte- from our company and converting it into the blister copper at their works.

Q. 34. About how long since the Tennessee Company ceased to refine the product yielded by the Ducktown Company's plant?

A. I think our present sales contract goes back about four years, and prior to that time we were selling to the Tennessee Copper Company.

Q. 35. As I understand the Tennessee Copper Company makes matte and then refines it into copper pig.

A. The matte is melted and then poured into what is known as a Bessemer Converter, through which it goes. The plant oxidizes the sulphur, and sulphur dioxide, and oxygen of iron and other foreign contents, reducing it into a pig metal which assays approximately 99.5% copper known as blister copper.

Q. 36. Has that been the method of operations at the plant of the Tennessee Company since prior to 1906?

A. Yes sir, it has.

Q. 37. Now, I understand that about twenty five per cent of the matte that is manufactured by the Ducktown Company
1131 during all these years is sulphur?

A. Yes sir.

Q. 38. And what percentage of sulphur is left in the refined pig copper which the Tennessee company has made during these years?

A. The percentage of copper remaining in pig metal is practically nill. The pig metal, as I have previously states assays about 99.5% copper, the balance being composed of oxide, or rather oxygen to an extent and also contains a small amount of gold and silver making up that difference.

Q. 39. Have you any knowledge of chemistry?

A. I have, yes sir.

Q. 40. Did you serve as a chemist with this company?

A. I have. My first duties with the Ducktown Copper Company was as chemist.

Q. 41. Are you familiar with the ores worked by the Ducktown Company and have been worked for some years previous?

A. Yes sir.

Q. 42. Have you also seen the ores worked by the Tennessee Company?

A. Very frequently, yes sir.

Q. 43. Are those ores, the ores treated by those companies, both companies, largely mined in the Ducktown Basin?

A. All the ores treated by the Ducktown Company are mined on their own property in the Ducktown Basin. The Tennessee Copper Company mine some there and also does custom smelting, accepting ores from Cuba and other points.

Q. 44. How many mines has the Ducktown Company operated during the past three or four years?

A. During the past three or four years they have operated three mines. The Mary Mine, the East Tennessee Mine and the Isabella Mine.

1132 Q. 45. In which one of them do the ores run the highest in sulphur materials.

A. The highest content of sulphur is contained in the Isabella Mine.

Q. 46. Approximately what is the content of sulphur in that ore as it is taken from the earth?

A. It varies from approximately twenty four per cent to as high as thirty per cent.

Q. 47. What is the percentage of sulphur in the other mines the company has operated?

A. The Mary Mine is much the largest producer, and averages as low as twelve per cent sulphur and as high as twenty per cent, and the East Tennessee Mine, our smallest producer, the ore here will average about eight per cent sulphur.

Q. 48. As I understand you, you do not smelt the same quantity of ores from these various mines?

A. Oh, no, no sir.

Q. 49. You smelt a good deal more from the Mary Mine than the others?

A. Yes sir.

Q. 50. Take the average of those ores during the years 1911, 1912 and 1913, what would the general average of the sulphur content be in the ores smelted?

A. It would be approximately fifteen per cent of sulphur.

Mr. Drake: We except to the question and answer as the books of the company would be the best evidence? Exception overruled and appeal taken.

Q. 51. I believe the books of the company would probably make about a car load, wouldn't they Mr. Lamoreaux?

A. Yes sir, almost.

Mr. Drake: We except to that question and the answer as being irrelevant and immaterial. Exception overruled and appeal taken.

1133 Q. 52. I will ask you if you know positively about what the content is without going back to Isabella and bringing the books here?

A. I cannot state positively.

Q. 53. I am not asking positively, but do you know approximately *what* the correct amounts?

A. I have a very close knowledge.

Mr. Drake: We except to the question as the books are the best evidence and they can be had. Exception overruled and appeal taken.

Q. 54. Just tell us for general information how the sulphur content is arrived at, commence with the process of taking the ore out of the mines and how it is finally carried on to the books of the company?

Mr. **Drake**: We except to the question because General Drake who he refers to does not ask for the information and cares nothing about it. Exception overruled and appeal taken.

Q. 55. Give it to us for the benefit of the court if the General does not want it?

A. The ore is mined and broken underground to sizes which will be convenient to handle by the miners. It is done by drilling and blasting. It is then loaded into cars and trammed through the levels and slopes to the vent shaft, where it is hoisted in shift cars to the surface. It is then carried by tram cars to our rock breaker where it is broken into pieces convenient for handling in the furnace, that is pieces weighing in the neighborhood of twenty pounds. In the rock crusher, samples are taken at regular intervals, which samples are collected into one lot daily and are carried down and broken to convenient laboratory size, when they are sent to the laboratory for chemical analysis. This represents
the daily sulphur and copper content of the ore, which per-
1134 centage is compiled and filed for that day, and gives the con-
tent of sulphur and copper in tons for the day's output.

Q. 56. How many times are those ores weighed in the usual process of mining and smelting?

A. They are weighed approximately four times underground, a record is kept by the miners, in the number of cars, which are trammed, each weighing approximately one ton. At the mill a second record is kept in a similar manner.

Q. 57. They are weighed there also?

A. They are kept there by count. Then after the ore is loaded into the cars the cars containing the ore are weighed on very accurate railroad scales, the tare of the car being taken off, giving the net weight, within one hundred pounds and the car averages four tons of ore. This ore is brought to our bunkers of the smelters and it is then loaded on to the charging machine. This charging,— At this charging machine the car is brought over another pair of railroad scales, Fairbanks Scales, where it is again weighed down to within five pounds, and all of the records are kept and compared in order to make settlement with the minders on their contracts, who keep a record of the amount of ore, and to keep a record of the amount of ore mined, and to compute the recovery of the copper in the ore.

Q. 59. Those records are kept in the ordinary course, for the ascertaining of the results of your operations?

A. Yes sir.

Q. 60. State whether or not they are the basis for the sworn reports that are made to the Chief Mining Inspector of the State of Tennessee and are required to be made up into that kind of a statement?

A. They are made annually to the State Mine Inspector
1135 and also to the United States Government.

Q. 61. I will get you to state whether or not those books and records are kept in the usual way and kept by compet people?

A. They are kept by our book keeper, and we believe him to thoroughly competent.

Q. 62. No one has ever questioned those records, that is the c rectness of them, to your knowledge?

A. They have never been questioned to my knowledge. Th is a duplicate record kept of the copper, it is kept by Ledoux Company of New York, recognized copper assayers in the Uni States.

Q. 63. I will get you to state whether or not you took figures from those books before coming here to testify in this c and whether or not you have them with you?

A. I did obtain such figures.

Q. 64. You have those figures to speak from when you come testify on those points?

A. Yes sir.

Q. 65. Now, before going into that, tell us about the operations the Tennessee Copper Company, whether their operations are o larger or smaller scale than those of the Ducktown company?

A. They are on a larger scale than ours.

Q. 66. How does the sulphur content of their ores compare w the sulphur content of the ores of the Ducktown Company?

A. Their main producer, known as the Burro-Burro Mine, c tains considerably higher percentage of sulphur than any of mines. The second producer known as the Polk County Mine, mediately adjoining our Mary Mine, being about the same t and character of ore as that contains the same percentage sulphur.

1136 Q. 67. What would you say was the average sulphur c tent for their ores?

A. I could not state.

Q. 68. You state it is quite in excess of those of the Duckto Company?

A. Yes sir.

Q. 69. To whom has the Ducktown Copper Company been s ing sulphuric acid since its plant went into operation in 1909?

A. The acid is contracted for and sold to the International A cultural Corporation in New York.

Q. 70. Where is it shipped to principally; what points?

A. Those points are designated by the buyer and shipped points covering Tennessee, North Carolina, Georgia, Alabama Louisiana.

Q. 71. To what use is that acid put?

A. The acid is used chiefly, almost solely for the manufacture phosphate rock fertilizer.

Q. 72. When was *was* the acid plant of the Tennessee Cop Company put into operation?

A. It was put into operation in September, 1908.

Q. 73. Was that plant a success at the start?

A. It was not, no sir.

Q. 74. What was the size of the acid plant as compared with the yield of sulphur dioxide from the smelting operations?

A. I do not understand the question exactly.

Q. 75. Was the sulphuric acid plant sufficient to take care of the sulphur content that was expelled in the smelting operations of the Tennessee Copper Company?

A. By no means large enough, no sir.

Q. 76. Give us an idea, relatively, as to what size plant would have been required as compared to the one there, to take care of the total sulphur content?

1137 A. The original plant built there was estimated to produce four hundred tons of sulphuric acid daily, *of* which it never succeeded in producing as a normal production. The plant in operation to-day is claimed to be a twelve hundred ton plant, or to have a capacity sufficient to take care of twelve hundred tons of sulphuric acid, and that is not sufficient to take care of the smoke produced to-day. So, the original plant was not one fifth, as large perhaps, as would be required to take care of the smoke they are producing.

Q. 77. How many furnaces do the Tennessee Copper Company operate?

A. They have to-day seven furnaces.

Q. 78. And the Ducktown Company has how many?

A. Two.

Q. 79. During the growing season, generally, do the two furnaces of the Ducktown Company operate on full time?

A. They do not. During the growing season only one is operated, in fact, during the greater portion of the year only one furnace is being operated.

Q. 80. Prior to 1901 or 1902 what was the universal process of preparing ores -or smelting?

A. The usual process was what is known as the open heap roasting method, which consisted in piling the ores on piles of wood and igniting the same with the object of expelling the greater portion of the sulphur. This ore, then after having sufficient time to cool was smelted in blast furnaces. All the sulphur *was* discharged from these ores escaped in clouds of sulphur dioxide gas mixed with air which settled in the immediate vicinity.

Q. 81. Was there a new or different process discovered in the quiet about 1901 or 1902?

1138 A. Yes sir, there was.

Q. 82. By whom?

A. Experiments were being conducted at Stechal and different mines in New Zealand, and about the same experiments were being conducted by the then General Manager, W. H. Freeland. Mr. Freeland was successful in accomplishing the first smelting, the first person to succeed in this present method in the United States.

Q. 83. Mr. Freeland was at that time Manager of the Ducktown Copper Company?

A. Yes sir.

Q. 84. Was Mr. Renwick at that time Assistant to Mr. Freeland?

A. He was Assistant to Mr. Freeland.

Q. 85. Now, after Mr. Freeland discovered and built,—first I will get you to state whether or not it revolutionized the copper smelting industry throughout the United States?

A. Yes sir, it did. Open heap methods were surplanted by this method as rapidly as feasible to continue in operation.

Q. 86. When did the Tennessee Copper Company cease the open heap method, before they began the newer method of smelting ore?

A. The last open heaps were burning in 1903 and 1904, during 1904 practically all the roasted ore was worked up in the furnaces and in 1905 it was complete. And the pyritic smelting was in full force after that time.

Q. 87. The pyritic,—what is the pyritic process of smelting which Mr. Freeland perfected?

A. The pyritic smelting is essentially the Dreck smelting by placing the ore in the furnaces without previous roasting operations. The Heap value or fuel value required for the smelting operations is obtained from the presence of the sulphur and the oxidation of the iron and the combination of that with silica,
1139 making sufficient heat, and in some cases a small amount
of coke is used to make up the deficiency in the heat value.

Q. 88. State if you have lived in the Ducktown Basin ever since you became connected with the Ducktown Company?

A. I have lived there since April 1905 when I became connected with the company.

Q. 89. Have you a family there?

A. I have.

Q. 90. State how far you live from the Ducktown Company's smelting plant?

A. My home is directly overlooking the smelting plant and probably lies with- a half mile therefrom.

Q. 91. How far do you live,—what direction do you live from the plant?

A. Northeast of the plant.

Q. 92. Probably how many operatives are there that have families within,—I mean how many persons, irrespective of whether they are operatives, have families within say a mile and a half of that plant, the Ducktown plant.

A. I should say about a third of the employees live with- a mile of the smelter.

Q. 93. Tell us, since the acid plant was placed in operation in 1909, what if any, changed conditions you have noticed with respect to vegetation and gardens and the forests in this Ducktown Basin?

A. Every person living within the basin now have a small patch of ground which is engaged each year in growing small gardens or table vegetables, and a great many of the homes are growing house plants for ornamental purposes. And quite a number of people there are planting out small orchards and ornamental trees.
1140 All of these with a very few exceptions are growing very
luxuriantly. In the outlying hills, the hills immediately surrounding the plant the grass is coming closer to the works each

year, as the small trees and shrubs are beginning to take on growth, so that the whole basin, which in 1906 was practically denuded is now assuming the appearance of growing vegetation.

Q. 94. Give us the tonnage, the total tonnage of ores melted by the Ducktown Company in the year 1910, likewise the sulphur content of those ores.

Mr. DRAKE: We except to the question without the witness knows without referring to any memorandum he has outside of the books. I demand the books as being the best evidence of the facts called for.

Exception overruled and appeal taken.

Mr. MILLER: I will state that as I understand the State Chemist of the State of Georgia is here present Mr. Stallings, I never met him until to-day, I am told he is a man of strict integrity and I now invite him, and he and General Drake and anyone else who wishes to see the books to go to Copperhill and there see them as long and go through them as long as you may desire, but it is utterly impossible to load up those books in a car, for years past and bring them down here. You are perfectly welcome to look through them. I understand the Georgia representatives have looked through them repeatedly and I extend a most hearty invitation to you to go again.

Mr. DRAKE: I will be glad to do that, and no doubt the Chemist of the State of Georgia will be glad to do so, sometime, but on account of the limited time it is not at our disposal, we cannot, therefore we would like to have the books present.

1141 Q. 95. I understand that the Chemist of the State of Georgia and other agents have had access to the books and have been shown through them on their various visits to Ducktown?

A. They have on two or three visits there been offered every facility. We allowed them every opportunity to view the works and inspect our books and records and we will only be too glad to have them do so.

Q. 96. Did any representative of the State of Georgia,—Were they ever refused any information asked for?

A. No sir, of my knowledge, never. It has been the policy of Mr. Renwick to offer them every advantage and information which they might wish or require.

Q. 97. You hold yourself ready to do that at any and all times?

A. I do, yes sir, those are my instructions.

Q. 98. I will get you to state if you have brought with you here from the books as recorded in the usual course of business, the tonnages of ore smelted and the sulphur contents and,—commencing with the 1907 down to date?

A. I have such figures, yes sir, obtained personally before leaving Isabella.

Mr. DRAKE: I except to each question for the reason I have stated before that the books are the best evidence.

Exception overruled and appeal taken.

Q. 99. Have you prepared a synopsis showing the tonnage of ores smelted by years, from 1907, the percentage of sulphur and the total yield of sulphur since coming to Chattanooga?

A. I have.

Q. 100. I will get you to file that as Exhibit No. 1 to your testimony?

A. I do so.

Mr. DRAKE: We except to that because the books are the best evidence.

Exception overruled and appeal taken.

1142 Q. 101. State, Mr. Lamoreaux, if the information contained in the summary is correct?

A. It is true and correct, with the exception of errors and omissions.

Q. 102. Is that an exact copy of what is shown on the books and records?

A. It is an exact copy as taken from the books as kept at Isabella.

Q. 103. How many chemists has the company had in its employ since 1906?

A. I think about six chemists including myself.

Q. 104. Do you know whether or not part of those are dead?

A. I do not think any of them are dead.

Q. 105. Where are they?

A. Most of them have left, not most of them but a number of them have left the employment of the Ducktown Company and are engaged in positions elsewhere.

Q. 106. These results of their various analyses were carried forward and placed on the books?

A. Yes sir.

Q. 107. And kept there as your permanent record?

A. Yes sir.

Q. 108. And that is those you have copied and brought here?

A. Yes sir.

Q. 109. Now, are you acquainted with the territory that intervenes between the plant of the Ducktown Copper Company — the plant of the Tennessee Copper Company?

A. I am, yes sir.

Q. 110. Did you or not prepare a map or drawing at one time when you were called to Chattanooga as a witness to testify in the Vestal litigation then pending in the United States District Court, showing something of this intervening territory?

A. I did, yes sir.

1143 Q. 111. I show you a drawing which I am going to ask you to file as Exhibit No. 2 to your testimony and will ask you to explain it?

A. I do so.

Q. 112. Tell us what it is?

A. Profile of the territory between the plant of the Ducktown Copper Company and Lots No. 27, and 114 and 140 claimed to be owned by the Vestal Brothers. This line extending through the Tennessee Copper Company's smelters. The scale is drawn on in accordance with the regular engineering practice, having a horizontal scale of one mile to two and one half inches and a vertical scale showing an elevation of 100 feet to each inch vertically.

Q. 113. That Vestal property, as I understand, was southwestwardly from the plant of the Tennessee Copper Company?

A. No sir, in a southwest direction,—Yes sir.

Q. 114. And that is the reason that this line was drawn in that particular direction, so as to show the intervening territory?

A. Yes sir, between the Vestal property and the Georgia line is just south of the Ocoee River, approximately through where this No. 3 line crosses. Thsi line is the Ocoee River, this is the Tennessee Copper Company's plant, this is the Burro-Burro Creek.

Q. 115. This map, as I understand, shows the stack, about the relative height of the Ducktown Company at the point marked D. S. C. & I. Co. Stack, or zero.

A. Yes sir, the elevation of the two stacks are drawn to the same scale and show relatively their difference in elevation.

Q. 116. And the bed of the Ocoee River is also shown the Tennessee Copper Company's stack standing near its bank?

A. Yes sir.

1144 Q. 117. I will get you to state whether or not that drawing is substantially accurate, as shown from the Government map, both horizontally and vertically?

A. They are taken from maps made by the United States Geological Survey.

Q. 118. I show you a similar drawing which I mark as Exhibit No. 3 to your testimony and ask you if you helped to make it?

A. I made it in person.

Q. 119. What does it represent?

A. This represents a section through the Ducktown Copper Company's smelter, and showing a line approximately east and west.

Q. 120. That is a cross section, just as if you cut down to the earth surface?

A. This is a vertical section with one section removed showing the contour of the earth, at the point if intersection. This is done to show the confines of the original Ducktown Basin, being bounded on the east by the Pack Mountains, a point shown as mountains south of Angelico Gap, on the east and on the west by Little Frog Mountain south of Panther Knob. The elevations and lines are taken from the United States Topographical Map.

Q. 121. I show you a similar drawing, which I file as Exhibit No. 4 to your testimony and will ask you if you made or helped to make that?

A. I made this also.

Q. 122. That was also made as one of the company's Exhibits, I believe, for use in the Vestal Case, while you were temporarily in Chattanooga attending court last year?

A. Yes sir.

Q. 123. Now, tell us what this Exhibit No. 4 represents?

A. This is a profile, or partial section taken approximately north and south through the socalled Ducktown Basin, bounded on
1145 the north by a point indicated as Stansberry Mountain and on the south by the mountains to the south of Chestnut Gap. The stack shown in green is the stack of the Ducktown Copper Company and the stack in blue is the stack of the Tennessee Copper Company, all measurements horizontally and vertically were taken from the Topographical Maps of the United States.

Q. 124. It appears from that map that there is a hill near the Ducktown Company's stack, and between there and the Tennessee Company's stack as you go southward; is that correct?

A. Yes sir. The object of this map was to show the obstruction to fumes from the Ducktown Copper Company's plant in progressing southward.

Q. 125. What does the blue line represent on Exhibit No. 2 the wavy blue line from the stack of one company to that of the other?

A. The blue line indicates the profile as shown on Exhibit No. 4 covering that portion that is superinterposed upon Exhibit No. 2—is that clear?

Q. 126. I would like for you to tell us in detail why the elevations on Exhibit No. 2, do not appear like they do on Exhibit No. 4?

A. The Exhibit No. 2, its elevations are taken in a northwestward and southeastward course, while on Exhibit No. 4 they were taken on a line approximately due north and south.

Q. 127. Do I understand that Exhibit No. 4 represents a cross section taken on or near the line running directly from the stack of the Ducktown Copper Company to that of the Tennessee Copper Company?

A. Yes sir, these two stacks are on the section line I took for the profile shown on Exhibit No. 4.

1146 Q. 128. How about on Exhibit No. 2, do they lie on the same line, if not what is the difference?

A. The profile shown in red on Exhibit No. 2 is on the line directly through the Ducktown Copper Company's plant, but it does not pass through the Tennessee Copper Company, but the blue line as superinterposed upon this shows the profile between the two stacks.

Q. 129. The red line on Exhibit No. 2 as I understand, would leave the Tennessee plant considerably to the east of it?

A. To the east?

Q. 130. Yes sir, approximately how far?

A. A half mile.

Q. 131. That red line is drawn to extend from the Ducktown Plant in the direction of mine No. 20 in the profile section; will you please take the map that is filed as Exhibit No. 1 to the testimony of W. M. Bowron in this case, and indicate by markings on that map the line shown on your Exhibits Nos. 2, 3, and 4.

A. I will do —, yes sir.

Q. 132. Now, Mr. Lamoreaux, assuming that any damage is being done south of the Georgia line to the vegetation forestry and crops by the smelting operations of either of the two companies operating n the Ducktown Basin; I will ask you from your knowledge and xperience to which of the two you would ascribe such damage and vhy?

Mr. **Drake**: I except to the question as calling for a conclusion vithout any facts having been stated on which to base such concluion and calling for an answer to an issue in this lawsuit.

Exception overruled and appeal taken.

1147 A. If any damage is being done by copper fumes escaping from either of the copper plants, would it not be reasonable to believe that the smelter nearest to the property alleged to be lamaged would be the most probable cause. Aside from that the olume of fumes sent out by either plant would be supposed to do lamage in proportion to such volume, the greater volume producing aturally the greater damage.

Q. 133. And which of the companies produced the greater volume f fumes, and has for the past several years?

A. The Tennessee Copper Company.

Q. 134. Now, is it or not a well recognized fact that bodies, runing bodies of water have an affinity for sulphur fumes and conducts hem?

A. I do not believe that they have an affinity for them, nor conluct them, but the sulphur fumes are claimed to follow such depresions.

Q. 135. Is not that by reason of the circulation of the air curents?

A. It is due practically to the circulation of winds and air curents.

Q. 136. Do the air currents along the Ocoee River — the same by lay and night or are they reversed?

A. I do not think there is any relation between the winds during he day or night, it is a question of atmospheric conditions.

Q. 137. Then if air is blowing,—If the wind is blowing up the iver, they probably send the fumes up the river, and if the winds are lowing down they send them down.

A. Yes sir.

Q. 138. Which of the plants is most favorable located for the umes to be distributed up and down the Ocoee River?

A. The plant of the Tennessee Copper Company, it being located almost immediately upon the Ocoee River.

1148 Q. 139. What do you say of the possibility or probability of the fumes from the Ducktown Company being dispelled and dif-used into the atmosphere before reaching the line of the State of Georgia?

A. After taking a straight air line, it would have to encounter a number of hills and other abstructions, if it followed the meandering creeks and streams, it would be a great many miles out of its direction.

Cross-examination.

By J. A. Drake, Esq.:

Q. 1. What schools are you a graduate from, Doctor?

A. I am not a graduate from any school, except the High School.

Q. 2. What chemical knowledge you have, has been gotten in the way of studying at the plants where you have been working?

A. No, I studied chemistry in two Universities, but never,——

Q. 3. You did not finish your degrees there?

A. I did not finish my degrees there, no sir.

Q. 4. Well, what is the specific gravity of sulphur dioxide?

A. Compared with what?

Q. 5. Compared with air.

A. Compared with air, it is approximately 2.2.

Q. 6. I will ask you if it is not laid down by the best of authors *that* 2.21

A. That is approximately 2.2.

Q. 7. Are you familiar with the dif-usion of gases?

A. Yes sir, I believe so.

Q. 8. Well, tell us how they dif-use?

A. Well, two gases of different composition can be dif-used
1149 with each other to form ultimately a gaseous mixture of uniform
compositions provided they are put under suitable conditions for such dif-usion.

Q. 9. What is the effect of heat on gases?

A. The effect of heat on gases, if they are not confined, is to increase their volume; if they are confined it is to increase their pressure.

Q. 10. On sulphur dioxide, what would be the effect of heating it in those furnaces there at Copperhill and at Ducktown and releasing them through the stack?

A. The gas, of a given temperature, sulphur dioxide, for instance; when heated in the furnace, it would increase its volume.

Q. 11. Increase its volume?

A. Yes sir.

Q. 12. What other effect would it have on it?

A. It would decrease its density or weight per cubic foot.

Q. 13. What is that other?

A. It would decrease its density, or would,—what corresponds to its weight per cubic foot.

Q. 14. That would effect its density and make it rise?

A. It would, provided the surrounding gases were heavier.

Q. 15. At what heat do you smelt copper at the furnaces?

A. The temperature of the slag as it comes from the furnace is probably the best measures of the heat in the furnaces and that is in the neighborhood of 1700 degrees Centigrade.

Q. 16. How much lighter would that make this sulphur dioxide fumes than the air?

A. The sulphur dioxide fumes do not come in contact with the air at all.

1150 Q. 17. If your furnaces are as hot as your slag, as the slag comes out?

A. I stated the temperature of the slag is the best measure of the ighest temperature in the furnaces, the slag comes from the botom of the furnaces and the gas is emitted from the top of the furace.

Q. 18. Then would not the gas be as hot as the *the* furnace?

A. It might be within the smelting area, but not as it is at the oint where it leaves the smelting surface of the ore.

Q. 19. It all starts out of the furnace and it is necessarily as hot s the furnace, and would it not be 1700 degrees?

A. No sir, it would not.

Q. 20. Why not?

A. As I stated before, the slag flows from the bottom of the furace, and superimposed over that is the charge of partially melted ock, ores and flux, and upon that is the charge which is continually eing poered in the ore which is practically at atmospheric temperaure, and therefore the gases in passing through that superimposed harge is cooled down to a great extent. I can answer that best by tating that the gases leave the surface of the ore charge at a temerature in the neighborhood of 800 degrees Centigrade, that is he normal temperature at the top of the ore furnace. It varies in ifferent types but our furnaces are approximately at that degree.

Q. 21. That is what I am asking. Isn't it the character of *h*ases nd all ores, when heated, that it rises, the hottest part rises to the op and the cool settles to the bottom?

A. That is correct, yes sir.

Q. 22. And would not the air, what little there be in the furnace, nd the gases in the furnace at the top be hotter than the bottom?

1151 A. Yes.

Q. 23. Until it escapes from the confines of the furnace?

A. That is true, yes.

Q. 24. But would not it necessarily be as hot, or hotter than the lag that runs out at the bottom.

A. At the surface of the slag the gases in contact with it would be pproximately the same temperature.

Q. 25. Then it would be approximately 1700 degrees at that oint?

A. At the surface of the slag, or molten contents of the furnace.

Q. 26. How much hotter, or how much more bouyant would hese gases be at that point than air, speaking relatively?

A. I cannot follow your question. How you would have it differnt under such conditions as that, I do not quite follow your queston.

Q. 27. Well, to speak in plain English, Mr. Lamoreaux don't hese gases get out of the top of the stack and go straight up into the ir for some distance unless the wind is blowing?

A. Yes, if the wind is not blowing the gases ascend from the op of the stack.

Q. 28. Is not that usual?

A. Yes sir.

Q. 29. They go straight up for one hundred to two hundred feet Piling straight up on a quiet day?

A. Not absolutely a calm day, I think that the gases do exten one hundred, or it is possible two hundred feet into the skies on a absolutely still day.

Q. 30. I will ask you if there is an upper current of air passin over the tops of the hills and which would pick up the fumes an drive them on with it?

A. Yes sir, that is a possibility of course.

1152 Q. 31. And is not it a natural consequence of coming i contact with winds, it would drive them whichever way th wind is blowing?

A. You are defining specific conditions?

Q. 32. I say if those conditions prevail as I have described t you, would not that be the effect?

A. It would be.

Q. 33. How much sulphur dioxide are you turning loose fro the top of the stack every day?

A. I could not state off hand.

Q. 34. You said you could state in chief how much you wer smelting and how much sulphur there was in it, and all those ques tions about the copper you were making and the sulphur retained i your ore, and yet you cannot tell how much dioxide you are turn ing loose?

A. I did not give any such answer.

Q. 35. Didn't you answer that?

A. No sir.

Q. 36. Didn't you tell Mr. Miller you retained a certain per cen of copper in your slag?

A. No sir, I did not.

Q. 37. How is — you retain twenty four per cent sulphur in tha matte when there is not but twelve to twenty per cent in the bul of ores?

A. It is very simple, the ores in going through furnaces are gradually concentrated before it is reduced to the form of matte, so the or originally containing ten per cent would be concentrated int half the volume and it would retain thirty per cent; in plain and simple English the matte contains this sulphur in the same proportion.

Q. 38. And you do not release it into the air?

A. Yes sir, that is true.

1153 Q. 39. What per cent of sulphuric acid do you get out o your ore?

A. There is no sulphuric acid in the ore.

Q. 40. How much sulphuric acid do you get out of the sulphu in the ore?

A. I can refer to my figures and tell you.

Q. 41. Can you not tell, being an expert, off hand, without referring to the book?

A. How much sulphuric acid we get from the sulphur contained in the ore?

Q. 42. Yes, sir, the percentage?

A. No, I cannot tell that.

Q. 43. But you have got the book here to refer to, find that out.

A. I have some notes here to refer to. I can refer to them and see. May I have Exhibit No. 1, will you please repeat your question Mr. Drake?

Q. 44. I want to know what per cent, how much sulphur dioxide is in your ore, and how large a per cent of it you save in sulphuric acid?

A. Your question, Mr. Drake, calls for a computation because there is no sulphur dioxide in the ore.

Q. 45. Well, the sulphur you make into the sulphur dioxide, don't you make it into the sulphuric gas?

A. Yes.

Q. 46. If you can tell me how much sulphur there is in the ore, you can tell me how much sulphur dioxide is in the ore?

A. Yes.

Q. 47. Well figure either way you want to, and tell me how much, I want to get the facts?

A. I have all the facts here, if I can understand your question so as to answer intelligently. I have the sulphur content
1154 for the,——

Q. 48. I will put the question in another form. What per cent of the sulphur that is in your ores do you convert into sulphuric acid?

A. Well, that calls for some more computation, again, I cannot answer that without it.

Q. 49. Well, approximately, we have to figure on that, I think we all understand that.

A. The company tries to take care of all of it.

Q. 50. That is not my question, I want to know how much you save, that striving has been going on for a long time.

A. For example, suppose we take 1913, there was contained in the ores treated 29,783.19 tons of sulphur. Now, of that sulphur content in the ore 1,387.22 tons went into the matte, which was shipped away; 12,408.42 tons of sulphur went into the sulphuric acid, which was shipped away; 2,536.3 tons of sulphur was contained in the slag, which was thrown away, and 348.7 tons of sulphur was carried out of the furnace in the form of flue dust. The sum total being 16,680.64 tons of sulphur accounted for.

Q. 51. How much sulphur was accounted for?

A. 16,680.64 tons.

Q. 52. How much sulphur did that leave that was not accounted for?

A. 13,102.55 tons.

Q. 53. As compared with 16,680.64 tons?

A. There was 16,680.64 tons accounted for and there were 29,783.19 tons in the original ore.

Q. 54. Then, you saved, according to those figures something over half of the sulphur?

A. Yes sir.

Q. 55. How much copper did you make in 1912?

1155 A. I have not the figures for the copper production here.

Q. 56. Well, matte, you talk about, that is what you say contained that twenty four per cent?

A. 1913?

Q. 57. 1912?

A. 1912, the other figures I gave were for 1913.

Q. 58. I want to know how much copper you made in 1912?

A. 11,029,575.

Q. 59. That means pounds, does it?

A. Yes, sir, pounds of matte.

Q. 60. Your company has been paying some enormous dividends, haven't they, Mr. Lamoreaux?

Mr. **Miller**: I respectfully submit to counsel that is asking the question that this is entirely foreign to this issue, a question of what dividends have been paid as to the destruction by sulphur, and I further submit, as we have no commissioner here to make the ruling,——

Mr. **Drake**: (Interrupting.) The purpose for which I ask the question is only for the purpose of illustrating the output in copper of this copper company or otherwise.

Mr. **Miller**: I understand the witness gives you the figures, the total of the copper yield, now, as to what they sell the copper for, or what disposition they make of it, I submit is entirely a commercial proposition.

Mr. **Drake**: I do not — that I will, Mr. Miller, but if I should question the figures you can see where it would,——

Q. 61. State whether or not you know anything of the profits from the operation of these companies,—of this company

1156 and if not, why do you not know?

A. I know nothing about the actual financial matters of this company, its profits are not looked to in this business, that is all conducted in London, where this company holds its head office.

Q. 62. I will ask you, Mr. Lamoreaux, to look at pages 325, 326, and 327 of the Copper Hand Book, Volume 11, by Wood, 1913, and look at these figures, and especially on pages 325 and 327 and answer if this company since 1906, on the common shares of the stock have not paid 335⅓ per cent and on the founders shares dividends amount to 77.778 per cent?

A. I beg to respectfully submit that I have no knowledge of that publication and cannot corroborate or authorize those figures.

Q. 63. You do not know whether they are correct or not?

A. I do not know.

Q. 64. How?

A. No, sir.

Mr. **Miller**: Now, the purported extract from this book I respectfully submit is wholly foreign to this issue.

Q. 65. Look at what purports to be the output of this company in 1910, 1911 and 1912 on page 327 of this same volume and state whether those figures are correct as to the output?

A. I give the same answer as before.

Q. 66. I am asking you as to the output, Mr. Lamoreaux.

Mr. Miller: I object to anything that is in the book being introduced into the record, but have no objections to the witness comparing anything that is there with what he knows to be true.

A. I respectfully wish to say that is my purpose here to give you all the information here in my means, but I do not think
1157 that in justice to myself, or to the company which employs me, I should give credence to any figures I am not authorized to, and which I have no control over.

Q. 67. I am asking you if they are correct?

A. I do not know.

Q. 68. Look at them and say, you know what the real figures of your company are, refer to these pages and to the memorandum you have and say if they are correct?

A. They do not correspond, the figures given here are in copper, the ones I have are in matte.

Q. 69. Don't you know, Mr. Lamoreaux, the general percentage of copper contained in the matte?

A. Our matte contains from forty four to forty seven per cent of copper, as it is shipped. It would be *nearly* a method of dividing and multiplying to get that figure.

Q. 70. Then you would not want to speak from these books and say whether or not they are correct?

A. No, sir, I would not. I have no knowledge of the source of the information contained in them. They publish this hand book of the copper producers of the United States. It is published annually and purports to give the reports of the different copper companies.

Q. 71. You are not willing to express an opinion as to whether this is correct or not? Although you do know the output of the company?

A. I am not disputing the accuracy of the book, I am answering to say that I will be glad to give you such figures as I have in my possession in regard to the company. They are taken from the comcompan*i'es* books by me before leaving Isabella.

Q. 72. The condition you speak of as obtaining in your section relative to the crops and vegetation was purely local was it
1158 not, Mr. Lamoreaux?

A. That is in the Ducktown Basin, a distance, I have been some three or four miles out on the roads surrounding the place.

Q. 73. That is what you would call local conditions?

A. Yes.

Q. 74. You do not know what the conditions are away down ten or twenty miles in Georgia, do you?

A. No, sir, I do not, definitely.

Q. 75. I will ask you also, locally, between the two stacks, the Stack of the Tennessee Company and the Stack of the Ducktown, if the tops of those ridges and hills are not entirely denuded of all timber?

A. They are, yes, sir.

Q. 76. And if it is not a fact that smoke when winds rise with them above the top of the ground, there is no vegetation of any kind to stop them or di-fuse them or in any way hinder their progress until they are in Georgia, if the wind is blowing that way?

A. There is no vegetation in the country lying between the two plants in a straight line.

Q. 77. I believe you stated, but Brother Hill does not remember exactly about that, and I do not either, so I will get you to repeat if I have already asked you. The fumes or smoke that rise from your furnace stacks, if it is not visible at times for one hundred to two hundred feet in the air?

A. No, I do not think I have ever seen it one hundred feet in the air.

Q. 78. Well, it is visible at all times, is it not, Mr. Lamoreaux going into the air for some distance?

A. Yes, sir, it is visible when escaping from the stack.

Q. 79. How far is it visible up into the elements?

1159 A. It depends entirely upon the direction and velocity of the winds. Ordinarily — we have a light wind blowing the smoke breaks off almost directly with top of the stack, and I do not believe it is ever raised over fifteen feet above the top of the stack if blowing a southerly direction. If blowing in a southerly direction it must first encounter our tall acid chamber which is higher than the stack and is broken up, and if the wind is from the south blowing northwardly it immediately crosses the creek and encounters an old open pit, and di-fuses immediately in the vicinity of the smelting plant.

Q. 80. That is your opinion, is it not?

A. It is my opinion, and it is also the actual facts.

Q. 81. Were you up in the air south of there to notice the fumes to see whether they were going south up over the hills to see or catch any of the fumes and see whether it was higher over there?

A. Hardly, it is perfectly visible standing on the ground.

Q. 82. Don't you know at times, under certain atmospheric conditions that you can hardly see it?

A. No, sir.

Q. 83. Don't you know when the air is damp and heavy it is much more easier to see?

A. That is true, if the air is damp and moist the smoke is much more evident to the eye.

Q. 84. What you mean by smoke is the gases coming out of the stack?

A. Yes, sir.

Q. 85. You see the gas come out of the stack and you can smell it?

A. Yes, sir.

Q. 86. Black smoke?

A. Yes, sir. Hydrate of carbon produces a very light smoke.

1160 Q. 87. What smoke you see issuing from the top of the stack is what you would call sulphur dioxide?

A. Yes, sir, the commonly applied name, as a matter of fact the sulphur dioxide smoke, is not visible.

Q. 88. I believe you stated your first experimental plant was a failure?

A. It was practically a failure, it had no value we could see that would justify keeping it.

Q. 89. You threw it out?

A. Yes, sir, absolutely scrapped it.

Q. 90. When did you open your present plant?

A. On the 11th of June, 1909, that is the date it was put into operation.

Q. 91. That is the one you have now, it was put in then?

A. Yes, sir.

Redirect examination.

By W. B. Miller, Esq.:

Q. 1. Mr. Lamoreaux, can you refer to the notes that you have and tell us during what months the greatest quantities of ore are smelted during the past two or three years?

A. I can tell you the months during which we produced the greatest tonnage, and that is the best indication of the smelting operations at the plant.

Q. 2. I understand you ship that matte away?

A. Yes, sir.

Q. 3. You weigh it carefully?

A. Yes, sir, we weigh it carefully on beam scales, stillyards and again on railroad scales and finally in New York at its destination.

Q. 4. Take the matte weighed for the year 1912, and give us the amount of ores smelted in May, June and July, 1912?

1161 A. In May, 1912, we shipped 944,760 pounds of matte; in June, 741,000 pounds; in July 857,555 pounds of matte.

Q. 5. Now, what was it in December of 1912?

A. In December it was 1,103,365 pounds.

Q. 6. Now, take the months of June, July and August 1913, what were your shipments?

A. In June, 1913, 927,777 pounds; July, 846,000 pounds; in August it — 798,685 pounds.

Q. 7. Now, take the last three months of that year and give us the matte shipments?

A. In October it was 1,140,450 pounds; in November it was 1,221,720 pounds; in December it was 1,070,370 pounds.

Q. 8. Now do your matte shipments in those various months compare with the tonnage of ore smelted?

A. In direct proportion.

Mr. **Drake**: I except to all the answer in figures because the books would be the best evidence.

Exception overruled and appeal taken.

Q. 9. What is the reason for the smaller quantities of ore smelted in those months and the consequent smaller shipments of matte?

A. It has been a general instruction of our General Manager that the furnace production be curtailed during the growing season of the year, that is from May until September.

Q. 10. Has that been the policy of the company?

A. That has been the policy for the last four or five years.

Q. 11. Now, in the statements you have made to General Drake on cross-examination about the percentage of sulphur reclaimed and the percentage that is supposed to be eliminated, could you
state whether or not that is a liberal view in favor of the
1162 contention of the State of Georgia, or is it a liberal view
in favor of the Copper company?

A. The figures are really very liberal in favor of the contention of the State of Georgia inasmuch as he has not taken credit for a considerable amount of sulphur taken up in the process of the manufacture of sulphuric acid and does not contain allowances of credit for a great amount of smoke around the furnace and the amount taken up in acid compounds, or acid contents of sulphur in the shape of flower sulphur, and some which escapes in the shape of gas hydrates and other compounds.

Q. 12. Then you have resolved every doubt against the company in making that calculation?

A. I have, yes, sir, I have given the benefit of every doubt to the other side as far as justice permits.

Q. 13. Do you or not see any substantial damage that is being done in the smelting operations of the Ducktown Company as far south as the Georgia line?

A. I think not.

Mr. **Drake**: We object to that as asking for a conclusion without any facts to base it on.

Exception overruled and appeal taken.

Recross-examination.

By J. A. **Drake**, Esq.:

Q. 1. Will you please give the head of each one of the departments of your company, beginning with the Superintendent,—well, all of the officers, President, Superintendent and on down,——

A. The local officers?

Q. 2. I mean the Ducktown Sulphur, Copper & Iron Company,
beginning with the President, who is the President?

1163 A. The Managing Director is J. G. Gordon, who has the
position corresponding with the president of American companies.

Q. 3. Where does he live?

A. He lives in London.

Q. 4. I just wanted to know the president.

A. J. G. Gordon.

Q. 5. Who are the officials in charge up here at the plant?

A. Mr. C. W. Renwick, General Manager; I fill the position of Assistant Manager, E. L. Larison is Superintendent of the Acid Plant, Mr. A. Nolde is Smelter Superintendent, Mr. W. E. Robinson is Master Mechanic, Joseph H. Taylor is Mining Engineer, and Mr. A. Bennett and John Quinn are mine captains.

Q. 6. Who is your shipping clerk?

A. The shipping of the matte and copper and the consignment of them is done through Mr. W. R. Barron, and G. B. Fariss.

Q. 7. Who ships the sulphuric acid?

A. Both are shipped by these two men.

Q. 8. The foremen of the mines, don't they have something to do with the weighing and handling of the ore there?

A. The mine foremen, they have nothing to do with the weighing of the ores.

Q. 9. Who is your book keeper?

A. Mr. W. R. Barron.

Q. 10. And is he the one you spoke of here as the shipping clerk?

A. Yes sir. There is one,——

Q. 11. There is one other thing I want to ask about, how long have you been carrying on this curtailment during the growing season you spoke of?

A. Well, the last four or five years, in fact that has been practiced ever since the building of the acid plant.

1164 Q. 12. I believe you stated you built the acid plant because the State of Georgia had that injunction over you?

A. That was the prime reason, yes sir. In compliance with our promise and obligations to the State of Georgia, to fulfil- their orders in curtailing the smoke nuisance.

Redirect examination.

By W. B. Miller, Esq.:

Q. 1. Mr. Lamoreaux, it may be objected to, but I wish you would get and file as an Exhibit No. 5 to your testimony a statement of the shipments of acid by months for the last three years, do you keep a record of that?

A. I can get the record from the first day we shipped acid.

Mr. Drake: We will object to that on the same grounds as already stated, that the books are the best evidence of this.

Exception overruled and appeal taken.

Q. 2. Mr. Lamoreaux, do you know why any additions were made to the acid plant of the Tennessee Copper Company in the last few years, and if so, when they were completed and put into operation?

A. There has been considerable enlargement in the plant in the last three years. The original plant built in 1906 and 1907 and started in operation in 1908 was calculated to take care of four hundred tons of sulphuric acid a day.

Mr. **Drake**: Which plant are you speaking of, the Tennessee?

A. The Tennessee Copper Company. And this was operated for several years with numerous failures and difficulties and on account of the failures they changed consulting engineers, or rather employed another consulting engineer and remodeled the old plant and designed an additional plant to supplement the original four hundred ton plant, this plant was completed about two years 1165 ago and it has been gradually added to. The plant is estimated now to take care of twelve hundred tons of sulphuric acid daily, they are not, however, producing that tonnage to-day. The transformation from the original small unit to the present larger unit began about three years ago and was completed something like two years ago.

Q. 3. You heard the testimony of Mr. Peter S. Gilchrist and Mr. J. M. McCandless to-day?

A. Yes sir.

Q. 4. Some suggestion was made of the disparity in the figures given by those, and the figures given by yourself as representing the sulphur dioxide that escaped during the ninety two days, I believe it was prior to their visit in September last, can you explain that?

A. The visit of Messrs. Gilchrist and McCandless was, I believe during the month of September and the figures that they show, that they used for their calculations were taken for the period covering some three months previous to that, that is what we call the growing months of the year, during which time the Ducktown management makes every effort to curtail their production and are doing so by decreasing the tonnage smelted so the months they had represent the months in which the operations were carried on at a much lesser magnitude. It is natural that their figures should be lower than the figures I gave, mine coming in 1913 would result in an average for a total year of something like three hundred days. Whereas, the average for three months was something like 16 tons of sulphur emitted, that will, I believe fully explain the discrepancy.

Q. 5. Your average was based on the entire yearly output and theirs during the growing season?

A. Yes sir.

1166 Mr. **Drake**: We except to this last, it is a repetition of the original examination.

Further Deponent Saith Not.

—— ——.

Sworn to before me this 20th day of June, 1914.

—— ——,

Clerk and Master.

1167 **Peter S. Gilchrist**, the next witness called, being first duly sworn, upon examination, deposed as follows:

Direct examination.

By W. B. Miller, Esq.:

Q. 1. Mr. Gilchrist, how old are you?
A. Fifty-one.
Q. 2. Where do you live?
A. Charlotte, North Carolina.
Q. 3. What is your profession or avocation?
A. Chemical engineer, building acid plants, and plants to take care of obnoxious vapors, such as fertilizer plant.
Q. 4. How long have you been engaged in the business of acid plants and reclamation of obnoxious vapors?
A. About twenty-five years.
Q. 5. Are you or not familiar with the construction and operations of sulphuric acid plants?
A. Yes sir.
Q. 6. What experience have you had in years, in the construction and investigation of sulphuric acid plants?
A. About thirty years ago I came to this country and installed the first mechanical furnace for making sulphuric acid at Richmond, Virginia, when they were discovered by Boicities, the very first furnace making it at Richmond, and afterwards the Standard Oil Company took it up and it went through. Then I have built, of course, a great many plants over all the country, superintended the operation and things like that, and been at it all my life.
Q. 7. Have you or not made a study of the obnoxious gases, their diffusion and their relation to each other?
A. Yes sir, because I build plants and take care of it, to overcome the odors all through the country, and naturally I have to take care of the gases in itself, before I can build a plant to take care of it.

1168 Q. 8. Have you studied and are you familiar with the law of the diffusion of gases?
A. Yes sir.
Q. 8. Are you the same Mr. Gilchrist who made an affidavit in this case some months ago?
A. Yes sir.
Q. 10. Prior to the framing of that affidavit, did you visit the works of the Ducktown Copper Company, at Isabella, Tennessee?
A. Yes, sir, Dr. McCandless and I were there together.
Q. 11. Had you previously been to the works of the Tennessee Copper Company at Copperhill?
A. Yes sir, just on a visit, interested in the operations.
Q. 12. Had you been through the plant?
A. Yes, I have spent a night there.
Q. 13. Are you familiar with the operations carried on by both of those companies?
A. Yes sir, I do not know what the Tennessee Company is doing since my last visit, but I knew up to that time.

Q. 14. When was the last visit that you made to the works of the Tennessee Company?

A. I would say, I cannot quite recall, it must have been two and one half years ago, something like that. I cannot give the exact time.

Q. 15. Did you know that Ducktown Basin section before the acid plants were installed?

A. I had gone through, but made really, no special note of it, just out on the railroad is all.

Q. 16. About when were you in the Ducktown Basin, at the instance of the Ducktown Copper Company?

A. Last September, 1913, about that.

Q. 17. You were then in company with Dr. McCandless, of Atlanta.

A. Yes sir.

1169 Q. 18. What was your mission down there, Mr. Gilchrist? What did you go there to do?

A. The Ducktown Company asked me if I would come down and examine the plant and see its operations, and asked if I could give a report after seeing it. I said I would be glad to come, and give it exactly as I found it, and no other way.

Q. 19. Do you know whether or not that was because the State of Georgia was making a certain demand on the company?

A. I think it was, something about that. I do not know very much about the business, though.

Q. 20. When you were requested to go there, and make observations and report, were you asked, or was it suggested in anywise by the company or anyone for it, that you color your report, or give it in good faith, as you found it yourself?

A. No, Mr. Renwick said for us both to come out and see the plant, and give it just as we found it.

Mr. **Drake**: We except to anything Mr. Renwick might have said, as being hearsay.

Exception overruled, and appeal taken.

A. There was no influence brought to bear on us in any way.

Q. 21. Did you or not, honestly ascertain and truthfully report the conditions as you found them?

A. Just as we found them.

Q. 22. Is that report in writing?

A. That is right.

Q. 23. Did you exhibit that report in connection with your affidavit in this case, or a copy of it?

A. Yes sir.

Q. 24. Now, Mr. Gilchrist, it is maintained by the State of Georgia, that the operations of the Ducktown Copper Company, as normally carried on at Isabella, is doing damage south of the Georgia
line, southwestwardly and southeastwardly from Isabella.
1170 I want you to tell us whether you found that to be so, and
if you think that untrue, then tell us why?

A. The acid plant was working about as fine as any plant I have ever seen, it was absolutely nitr*i*us, no sulphur coming out at all. There was traces, you know, but I mean of any amount. Otherwise the nitr-us acid gas could not come out of the same stack. And you not have the red foxtail where there is any imposition of the sulphuric acid. And all the sulphur was going through the condensing chambers, flowing in and the gas was coming from the chambers and went through them,—was absolutely condensed. In fact, we figured out there was about fifteen hundred pounds of sulphur which checked over. There is always a little trace carried out in the death plant, that we can find, so that was virtually doing ideal work. We went through the books, we got the ore used over a period of ninety-two days, we got the sulphur contents of that ore, and the amount of ore used from the different mines, that was the amount of ore actually used during that ninety-two days. Then we got the sulphuric acid shipment, we had so many days and the sulphuric acid books shows that, and the amount of matte, flue dust, and that all totalled up, and the difference between what we got, and what was charged was a loss. We did that as nearly accurately as it was possible for anyone to get at that lot of care.

Q. 25. Then, what conclusion did you arrive at, with respect to the damage being done by the operations of that company, south of the Georgia line?

A. I cam*a* to the conclusion after sleeping there, spending the night, and the wind fortunately happened to be blowing that way. I had my window open, and in a direct line, I was not bothered at
all. I was just about half a mile,—we slept away from the
1171 plant on the hill about a half a mile, there was no trouble
at all. I did see on the porch door a vine which had been scorched, and I directed Dr. McCandless' attention to it. It might have been caused by the gases, but we figured out that there was about sixteen to seventeen hundred tons of sulphur that we could not account for. We could not, of course, account for the flo*we*rs of sulphur, we had no way to do that, and gave them as a loss, due to the operation. There were flo*we*rs of sulphur which come out only at the furnace. It is no loss, except through the charging, when you open the top of the furnace to *pore* in the ore, and during that time, flowers of sulphur would come out. Now, sulphur dioxide was present, and when they would open the furnace top to feed the ore in it, it would come out. We saw it drop out, but we could not measure that and give any credit, so really our report is not quite as it ought to be, but we have no way of estimating how much, only as we have. As we had no way of collecting these flo*we*rs of sulphur, we gave it as a loss.

Q. 26. What would be the result of this outflow of sulphur when the furnace is charged, does that do any harm to vegetation, at any distance?

A. No sir, I am satisfied it does not. May I explain that?

Q. 27. Yes.

A. Right in the city of Chattanooga, there is approximately six thousand, five hundred tons of coal used per annum, carrying one per cent of sulphur, that figures out about seventeen tons a day, almost identical with what is the output there, the average comes in every day. I do not know exactly the amount each day, but an average comes in through the year. I have been in Chattanooga many many times, when I could find traces of it. Even this morning, from the hotel window, I happened to get a trace of it this morning.

1172 Q. 28. That is out of the coal known as soft coal, and which we use throughout this section, do they carry a per cent of sulphur?

A. Yes, one per cent is the minimum.

Q. 29. And is that sulphur content eliminated in the burning of the coal?

A. It is eliminated in the burning of the coal, yes, sir. It is eliminated through the city in the manufacturing plants, the same as in a smelting plant.

Q. 30. And is the sulphur which is eliminated here, eliminated in the form of sulphur dioxide?

A. Sulphur dioxide and carbon gas, of course, there is a great many of the carbon dioxide gases.

Q. 31. As I understand you you say there are about seventeen tons of sulphur that you did not account for in what period?

A. The average daily for ninety-two days.

Q. 32. You just took that from the company's books, as kept?

A. Yes, sir, just for the company's books as they keep them.

Q. 33. Did you take their shipments of acid?

A. He brought all his books and laid them before us.

Q. 34. The books were the large ones kept in the company's office?

A. They are the books of the company.

Q. 35. Now, on the assumption that there was a daily yield of ten tons of sulphur there that was eliminated at the top of that stack, and expelled into the air, state what, if any, appreciable effect it would exert on vegetation, crops or forest in or across the Georgia line?

A. Surely nothing, it is so diluted before it reaches there, suppose it all went that way, over the Georgia line, for it is taken up by dif-usion, it is mixed in going along until it is diluted to such an extent that it could not do any damage.

1173 Q. 36. Taking the top of the stack as the nucleus, and supposing this flo*we*r sulphur which you are talking about, was converted into sulphur dioxide, floating away over that territory, that immediate territory, and having a regard for the law of dif-usion of gases, would they be dif-used by the time they reached the Georgia line, would they all be dif-used?

A. I made the calculation this way, where we assumed the base of the tunnel was on the Georgia line, if you will notice the chimney of smoke begins to spread out, any chimney does so, the smoke will spread out this way and that way as it goes along, so after leaving the ap*p*ex at the Ducktown plant and reaching the Georgia line, it would leave a space of two miles, a line two miles long and seven hundred feet high, I figured out there was,—assuming that this is a cone, you know, the base two miles wide, and say about seven hundred feet high, this cone with an appex right at the plant, that holds so many cubic feet of air. Only, this is pure air, contained in a cone about two and one half miles long, the body of that cone has got to be moving according to the rate the wind is travelling, in other words, the average wind velocity is about two and one half miles an hour, that the two and one half miles does not quite move the entire body of the cone out of the way every hour, but figuring on that basis, it came down to about one part of S.O..-2, or sulphur dioxide, to about one and a half million times of air. Now, in the entire figure, you will find that that distance and the amount of that million and a half times of air, that that would be so diluted before it reaches the Georgia line, it is almost nill.

Q. 37. State whether or not the sulphur dioxide diluted to the extent it would be travelling that distance, under the prevailing conditions there, would exert any presentable effect on vegetation, crops or forestry, south of the Georgia line?

1174 A. No, sir, not three and one half miles distant.

Q. 38. Now, assume if you please, that there is being damage done down in the State of Georgia by the smelting operations and as a result of it eliminating sulphue dioxide, what would you say as to the cause, what is the source of that infection?

A. It must be,—one of the smelters must be the cause, one of the operations, that is, of sulphur dioxide.

Q. 39. Well, which would you say?

A. Well, if this one would not reach the line, of course the other, or nearer one, must be the one which is causing the damage, but I can probably show they do the damage. This company, they are making too much acid.

Mr. DRAKE: We except to the last part of the answer, because there is no facts stated on which to base an opinion.

Q. 40. Did you travel out southwardly, southeastwardly and southwestwardly from the Ducktown plant while there?

A. Yes, sir, we took a buggy ride while there.

Q. 41. Mr. Gilchrist, would you say from the operations as they are generally practiced there at Isabella, that the effects of the sulphur dioxide that is emitted from the Ducktown Company's plant would be carried onto the sides of the hill that faced the smelter, or onto the opposite side from the smelter?

A. Of course those facing the smelter very naturally, and that will *avry* according to which way the wind is blowing.

Q. 42. Now, state whether there is an intervening chain of hills between the Ducktown Company's smelter and the State of Georgia, or the line of the State of Georgia, at the nearest point, and extending eastwardly and westwardly between the smelter and the Georgia line?

A. Yes, very. The country seems to abound with hills.

1175 Q. 43. What would be the effect of those hills on the fumes that would be emitted, assuming that all the sulphur that is unaccounted for in your consultation, is sent out in the form of sulphur dioxide?

A. Well, in striking a hill of creek, that assists in dif-using. You can strike against anything,—it carried it up and helps to difuse it, much more readily, and of course each hill top it strikes is so much resistance to it. Just like the wind, and it naturally follows anw water, any streams, it passes over, it deflects a little bit, until the current takes it up, and it is getting less and less all the time, besides what the air carries away in dif-usion.

Q. 44. What would you say of the conditions of the Ducktown Basin, since the acid plants have been installed by these two companies, and as the operations have been conducted during the past two or three years, as compared with what they were, before the building and installation of these plants; I mean to say, what is the change if any, in the forest, the appearance of the forest and the result- effect on the fields and gardens?

A. I would not like to say so much about the appearance of the forestry before the acid plants were built, because I passed there, I was not paying much attention and I did not notice that the country was denuded of vegetation, part of it, but I do notice this, wherever anything is planted it grows luxuriantly. The one or two gardens we visited, were magnificent. It was almost like an oasis in the desert.

Q. 45. How far were they from the plant of the Ducktown Copper Company?

A. Well, they were within a mile or a half mile, I will say, just the houses of the operatives.

Q. 46. After you left the plant for a mile or so travelling towards the Georgia line, or southeastwardly, what was the conditions?

1176 A. Well, after you got a certain distance you can see the gases coming out, but the soil is all taken off, that is the trouble about that country, the soil,—the plant life has been washed away, nothing to retain it in years gone by. But now the rock and stone is beginning to break up again and form new soil and gradually the plant life is propping back as it used to be.

Q. 47. After you passed the Georgia line, southeastwardly and southwestwardly from this plant, do you think the operations of the plant as conducted, would have any effect on the vegetation?

A. None at all.

Cross-examination.

By J. A. Drake, Esq.:

Q. 48. When was the first time you went up there at the instance of this company to make investigations?

A. Last September.

Q. 49. Last September?

A. Yes, sir.

Q. 50. What time?

A. I could not give the date exactly, sometime in September I may say, but I could not locate the date.

Q. 51. Was it the first or the last?
A. About the middle of the month.
Q. 52. How long did you stay up there at that time?
A. A couple of days.
Q. 53. That was when Dr. McCandless was with you?
A. Yes, sir.
Q. 54. How far down in Georgia did you go, I think you were in a buggy, I believe you say?
A. Oh, we just drove all around in and about, well I would say a couple of miles, three miles, something like that, and then we
1177 went down to Ducktown, and met the train, and I drove up from Ducktown to the plant in an automobile.
Q. 55. You go to Ducktown and then drive from there up to the Isabella plant?
A. We got off there and went up to Ducktown.
Q. 56. How far did you drive down towards Georgia from the Ducktown Copper Company, in that buggy trip you made?
A. I do not know. It seemed a long ways, I suppose it is only two or three miles.
Q. 57. Two or three miles?
A. I suppose.
Q. 58. And that is all the investigation you have ever made to the growing crops and vegetation, is it Doctor?
A. You mean with regard to that plant?
Q. 59. I mean, relative to that plant, you have not been there this year?
A. No, sir, no.
Q. 60. You made that trip with a view of giving an affidavit?
A. Yes, and the main thing was, I went to see about the working of the plant, really that was what I went especially for.
Q. 61. You went to investigate the workings of the plant and not as an expert on vegetation?
A. No.
Q. 62. You do not claim to be an expert on vegetation?
A. No, I have just got good sense.
Q. 63. And the conditions you examined, were purely local?
A. Yes, sir.
Q. 64. Now, you say you know smoke and the diffusion of gases, and can give us some illustration of how they would affect a community? Suppose you have given a basis, then how far would they be disseminated out into the air, if the air was perfectly still and no wind, would they not go in every direction?
1178 A. They would be dif-used with the atmosphere as far as they went, and they would travel out under those conditions in all directions, and keep widening out. I did not take any example like that, but I would take a chimney, but I would just take,——
Q. 55. I will ask you this question, Doctor, if the wind, if the velocity of the wind does not have a great deal to do with the carrying effect of these fumes?
A. Of course it does.
Q. 56. If the wind was blowing at a high velocity, it would carry

the fumes further before they were diluted, than it would if they were traveling very slowly, giving the gases time to cool and fall down to the ground, would it not?

A. You take smoke coming out of a stack and the wind at a high velocity, you get them mixed quicker, and it is diluted, the more wind you have, the quicker dilution you have, but when the fumes come out of the top of the stack they are hot.

Q. 57. And are they not much more adhesive at that time?

A. Yes, sir.

Q. 58. They stick together closer when hot?

A. Yes, sir.

Q. 59. And being hot, the wind picks them up and carries them on almost like a ball?

A. No, sir.

Q. 60. Like a stream of water pouring forth, and they are not so easily scattered?

A. Yes, you cannot, the law of nature is such that no two gases, the moment,—I do not care what they are, come in contact, you can put the heaviest on the bottom, and the lightest on top, and it will only be a short time when the heavier is mixed with the lighter, that is the great salvation in this day and generation, the towns are tak*ing* care of by the uniformity of the atmosphere over them.

1179 Q. 61. I want to ask you this question: you state whatever damage might be done in Georgia, it is your opinion, although you did not state any facts on which to base that opinion, that it was not done by the smelting operations of the Ducktown Copper Company? Why do you say that?

A. Well, going at that on the basis of seventeen tons of acid each day, each and every day,——

Q. 62. (Interrupting.) Answer that question first; that is your statement?

A. Yes, sir, I said that.

Q. 63. Now, let us suppose that in the month of May or part of the month of May and June of last year, that the Tennessee Copper Company was closed down entirely and did not smelt any ore or matte, or anything else for the space of fifteen to thirty days, during that time, all that country back in the Flat Creek country, east from Ellijay, or from Blue Ridge, and north from Blue Ridge, and all along in that north valley of the Tacoa river, was covered with sulphuric fumes, so much so, that the citizens could smell them, and they could see them, and that the leaves on the trees were parched, to what would you attribute that kind of damages?

A. It could not be the Ducktown people. I have explained that to you. I have contemplated the other conditions which you describe, and I have taken that into consideration, but I do not see how you could do that, how they could float that far away.

Q. 64. From what would you say those conditions would arise, you say that without question, those conditions could not have prevailed?

A. No, sir.

Q. 65. You do not know what kind of smoke they were belching forth there last May?

1180 A. No, sir, I do not.

Q. 66. You know they had two furnaces there, didn't they?

A. Yes, sir.

Q. 67. How many were they running when you were there?

A. One.

Q. 68. They sent for you to come?

A. Yes, sir.

Q. 69. How long before?

A. I do not know just when?

Q. 70. When you got there they were using only one furnace?

A. One furnace.

Q. 71. Did not you say they had two furnaces?

A. Yes, sir.

Q. 72. You do not know of your own knowledge how much ore they smelted that day, do you?

A. No.

Q. 73. All you know as to that is what their books show?

A. And the figures they gave me to go by.

Q. 74. How much sulphur dioxide will a pound of sulphur make?

A. Two pounds.

Q. 75. Just double always?

A. Yes, sir, it is double.

Q. 76. And according to their figures which were furnished you there, how much sulphur dioxide were they turning loose per day?

A. Seventeen tons would be thirty four, of course there are flowers of sulphur in that seventeen tons. I could not weigh them, could not get them.

Q. 77. Did you hear the figures given here by Mr. Lamoreaux, as to the amount of sulphur?

A. Yes, sir, I think I, did.

Q. 78. Do you know how much per cent it would be of the sulphur that they were discharging into the air from his

1181 figures, what per cent?

A. It is more than mine. Mine was twenty-two to twenty-three per cent.

Q. 69. His is more than yours?

A. I think so. I have not got the figures.

Q. 70. The day you were there, they were not smelting as much ore, as according to the whole record it shows?

A. No, sir.

Q. 71. You say your average was taken in the ninety-two days, as given you by them?

A. Yes, sir.

Q. 72. You got the figures from ninety-two days?

A. Ninety-two days.

Q. 73. And you were not there but two days?

A. Two days.

Q. 74. That is all you inspected there, was just in the two days?

A. That is all.

Q. 75. That is it, the duration of your observation was just two days?

A. Yes.

Q. 76. Just part of those?

A. I got there in the morning and stayed one night and left the next night.

Q. 77. Did you see their analysis books and records?

A. Yes, sir.

Q. 78. How often do they make them?

A. They make them a number of times a day, they have to.

Q. 79. How many times a day do they make these analysis?

A. I would not be able to say, though they take them different times a day, very frequently, for they could not take only one, because they may vary frequently during the day.

Q. 80. Is it not a fact that these ores vary considerable in sulphur?

1182 A. Oh, yes, they do to some extent, but you will be surprised to see how uniform they run day after day.

Q. 81. You do not know how much sulphur these ores contain?

A. I only know what they gave us.

Q. 82. You never analysed any of them?

A. No, sir.

Q. 83. You do not know anything about it then, only what they gave you?

A. No, sir.

Q. 84. They do not have any process by which to mix these ores uniformly, do they, that is, say the ores from one mine and the other?

A. No, it is this way, they put them all in, mix them in certain quantities, they have to analyse the ores frequently, it is a very quick process, can be done every eight minutes, and very very carefully.

Q. 85. They have not got what is considered the most modern methods for making ores, have they?

A. Yes, sir, they have for a smelting plant.

Q. 86. Have they got a mixing plant where they distribute the ores uniformly?

A. No, I do not think that is a modern plant.

Q. 87. You do not think it is a more modern process of mixing ores?

A. No, they put in the mixture, in making a certain percentage of each of the three classes of ore, they get a certain content of the three classes, and know the percentage, they would make any difrent.

Q. 88. They would make how they mixed the ores?

A. No, sir, I do not think so.

Q. 89. You are an acid expert?

A. Yes, sir, supposed to be.

1183 Q. 90. In the making of acids, don't you know it is very important to your product, to have your ores uniform so as to know how to handle them?

A. In acid making they use some two or three different classes of ores in the same acid plant.

Q. 91. You have not answered my question.

A. As long as you know how much sulphur there is in the ore, it does not matter how much we put in.

Q. 92. Is it not a fact, that the more uniform in sulphur your ores are, the better results you can get?

A. Yes, I grant that, yes.

Q. 93. And is it not, very important, that they make their ores run uniformly in the smelter, if they want to get good results?

A. Yes, sir.

Q. 94. Then, would not it be more important to have a method to mix these very uniformly?

A. Well, it might, but when you put a charge in, and as long as you know what it is, it does not matter from what source you get it.

Q. 95. Doctor, don't you know if they were to dump in a load that contained ninety per cent sulphur and in thirty minutes dumped in a load that contained forty per cent sulphur, and would make such changes and variations, that they could not get good results?

A. No, they could not get good results in that manner.

Q. 96. It is better to mix your ores uniformly?

A. Yes, as long as you have some method of getting them uniform.

Redirect examination.

By W. B. Miller, Esq.:

Q. 97. Trusting the company did not have any control over the men,—or over the formation of those ores originally, that was by a geological process?

1184 A. Yes, sir, but in a mine it is generally uniform, all in one part of the mine, and you get very little variation at one mine. It goes very uniformly.

Q. 98. And whether there is a difference of twenty per cent in the ores, or in the sulphur content, you can compute the sulphur dioxide that is eliminated, you can work it up in the acid plant, and recover it?

A. Certainly.

Q. 99. There seems to be a discrepancy, an apparent discrepancy, between the figures furnished by Mr. Lamoreaux and you and Dr. McCandlett, did you take into consideration only the ninety-two days' run, like you stated, after you heard Mr. Lamoreaux say on the stand, in the giving of his deposition that his figures were very liberal in favor of the State of Georgia?

A. I heard him say so.

Mr. Drake: We except to that question and answer as his answer is the best evidence of what he swore.

Exception overruled and appeal taken.

Q. 100. Did you or not, also hear him state that during the summer months, that is the months that would have immediately preceded the visit of yourself and Dr. McCandlett there, that the consumption of ores there was smaller than in the winter months?

A. Yes, sir.

Q. 101. Assuming that during the summer months, the yield of matte would be only about six elevenths of what it is in the winter months, would,—you were there in September, would or not that affect and largely explain the apparent discrepancies between the figures of yourself and Mr. Lamoreaux?

1185 A. Well, of course there is a good many ways of getting at those figures during that time, they make them run continuously, but when sulphur is taken off from the furnace, it goes to the acid plant, that is big enough to take care of it all, so, if they lose gas in the workings of the plant, it is natural for the smelter to do so, to lose a very slight amount.

Q. 102. Do I understand you to say that the smelting operations always result in a percentage of sulphur dioxide escaping?

A. Whenever they open the top of the furnaces to feed the ore in, you cannot help it getting out entirely, for in the meantime it will belch the gas out.

Q. 103. Is it possible to prevent that?

A. I do not think it is yet, but I think sometime we will get over that.

Q. 104. Was the illustration that you gave of the zone, in the distribution and dif-usion of sulphur dioxide, a fair illustration?

A. I think so, about as fair as I could get.

Q. 105. Did you or not, in making your computation, take into consideration the various *a*ffects that would be encountered with i the distribution of sulphur dioxide, being sent southwardly and southeastwardly towards the Georgia Territory?

A. It would not make any difference, in fact, we did not take into consideration the absorption by stream or anything like that.

Q. 106. You just assumed it would be carried as much as three miles?

A. Yes, sir.

Q. 107. That it would be carried to the Georgia line?

A. Yes, sir.

Q. 108. But as a matter of fact, would a lot of it be precipitated in a short distance from the plant?

A. Yes, sir.

1186 Q. 109. You are also assuming the entire body of it would be transported all the way to the Georgia line, and it would only be dif-used in the usual ratio at the time it reached there?

A. Yes, sir.

Recross-examination.

By J. A. Drake, Esq.:

Q. 110. About those ores, they *are* three kinds of ores, don't they?

A. Yes, sir, three kinds of ores.

Q. 111. They run different in sulphur?

A. Yes sir, sulphur content.

Q. 112. In mixing those three different kinds of ores, isn't it important that they use the same proportions at all times?

A. Yes sir, that is right.

Q. 113. In order to keep the sulphur right?

A. Yes, sir.

Q. 114. And if they do not have a good method of doing that, the amount of sulphur that is being released, would vary day by day, would it not?

A. Yes, sir.

Redirect-examination.

By W. B. Miller, Esq.:

Q. 115. You were there and saw them as they smelted the ores, have you got any improvement to suggest on their manner of converting or handling those ores?

A. I do not think so, because that is right, you have got to block it off into the smelter like they do, but we do hope that we will have an improvement some day.

Mr. Drake: We except to that as being irrelevant.

Exception overruled, and appeal taken.

Q. 116. Now, what would be the relative sulphur dioxide contents, say in cities like Cincinnati, Cleveland, Ohio, Colum-
1187 bus or Chicago, or Atlanta, as compared with the sulphur
dioxide that would be found in the atmosphere, assuming that the smelting operations of this company were carried on normally, in connection with the acid plant, as has been described by Mr. Lamoreaux in your presence here to-day, after the sulphur dioxide reaches the Georgia line?

A. It would be very similar, now take London, England, that is a densely crowded city, it has been ascertained by the government experts that for each square mile in the city of London, in the summertime, there is eighteen tons of sulphur in the coal, and in the winter it is forty-one tons per square mile.

Q. 117. Double that would be the sulphur dioxide?

A. Yes, sir.

Q. 118. Now, in Cleveland, where they have a great many manufacturing plants, there it is so strong, that you can knock the sulphur acid off of the leaves on the trees in the parks.

Q. 119. How do those territories compare, about in percentage of sulphur dioxide in the atmosphere, with the section of North Georgia, that lies southwardly and southeastwardly from Ducktown, assuming the operations of the Ducktown Company were to continue as Mr. Lamoreaux has described them here to-day?

A. How do you mean?

Q. 120. I am trying to ascertain whether the operations as carried on at Ducktown, as Mr. Lamoreaux has described them, taking his figures, would send into Georgia, that territory immediately south and southeastwardly and southwestwardly of the Isabella plant, proportionately as much sulphur dioxide in the same place, as will be found in Cleveland, Chicago or other cities?

A. No, I do not think so.

Recross-examination.

By J. A. Drake, Esq.:

1187½ Q. 121. Is the timber all killed in London?

A. Oh, no, they have beautiful forests.

Q. 122. They have fine timber and fine forests?

A. Yes, sir.

Q. 123. How much area does London cover?

A. London proper is not a very large place.

Q. 124. Is not large relatively to the world?

A. A few gardens and a few houses,——

Q. 125. How many tons of sulphur dioxide would that sulphur make?

A. In the summertime it was eighteen, thirty-six tons of sulphur dioxide per square mile of territory, in the summertime.

Q. 126. According to the figure, and according to your own knowledge, is not that much sulphur dioxide in the air, if exposed any length of time to timber, and growing vegetation, absolute death?

A. Every tree in London would be killed is all I have got to say, if it were.

Q. 127. That much is beneficial for the forests, if they are so fine?

A. Of course, I won't say it is not beneficial, but there is no one who thinks it is a benefit. Of course too much is not a good thing.

Q. 128. Relatively speaking, how many units of sulphur dioxide to one of air, would there be in the city of London, according to the figures you have given?

A. That is pretty hard to say.

Q. 129. Would it be one of sulphur dioxide to one hundred thousands?

A. No, I would not think so.

Q. 130. Would it be one in two hundred thousand?

A. No, sir.

Q. 131. Would not there be more than one to three hundred thousand?

1188 A. No, I do not know just what it would be. Well, it would be considerable.

Q. 132. Does the presence of this sulphur dioxide in Cleveland and London do any damage?

A. My Uncle was president of the,——

Q. 133. (Interrupting.) You can explain after you answer. Does it damage vegetation in Cleveland and London?

A. No sir. My Uncle Peter Spence was president of the British Association and they tried to take that thing up, the government was trying to further the organization of an acid plant, and the British Association had experts to examine all the big towns, and they went to the forest, parks in London, Manchester, Birmingham, and other towns, and they saw the chemist wash off, actually wash off sulphuric acid off the leaves, which were perfectly healthy, and there was no injury to them.

Mr. DRAKE: We except to all that explanation, as being uncalled for in the answer, and being irrelevant and immaterial.

Exception overruled and appeal taken.

Further deponent saith not.

Sworn to before me this 20th day of June, A. D., 1914.

———— ————,
Clerk and Master.

1189 J. M. McCANDLESS, the next witness called, being first duly sworn, upon examination, deposed:

Direct examination.

By W. B. MILLER, Esq.:

Q. 1. Dr. McCandless, what is your age?
A. Fifty-five.
Q. 2. Where do you live?
A. Atlanta.
Q. 3. What is your business or profession?
A. Chemist, *anyletical* chemist.
Q. 4. What experience by years have you had?
A. I have been a chemist nearly thirty years.
Q. 5. Have you held any official position in connection with the state of Georgia?
A. Yes, sir, state chemist of Georgia for about ten years.
Q. 6. When did your official tenure cease?
A. 1907, I think it was, the latter part of 1907.
Q. 7. And as the representative of the state of Georgia, did you take occasion to visit the Ducktown section in Tennessee and territory known as the Ducktown Basin?
A. Yes, sir, I was a member of the first commission which was appointed to visit that section in 1903. And I was also a member of the United States Commission, appointed in 1905 and since that time, I have been sent by the attorney general of Georgia up into that region on two occasions, 1908 and 1910.
Q. 8. By what authority were the two first commissions performed?
A. By authority of the legislature.
Q. 9. Of Georgia?
A. Yes sir.

1190 Q. 10. Then you were familiar with the conditions existing there before the acid plants were built?

A. Yes, sir. On our first visit, they were burning with the open roast heaps. And then the whole territory was covered with a fog of sulphuric acid, so that it was a punishment for us to go there, the air was so full of sulphuric dioxide, that the tears would run from your eyes.

Q. 11. What opportunities did you have to observe the forests and crops, and the gardens located along the Tennessee line and below there, in Fannin County, Georgia, southwardly, southeastwardly and southwestwardly from Copper Hill?

A. We drove through the country and observed the conditions as we passed along, and unquestionably there had been great damage done by the gases which had been carried by the wind, and further down into the ridges and foothills in Georgia.

Q. 12. The Tennessee Copper Company's plant has always been located some two or three miles nearer the Georgia line than the others?

A. Yes, sir.

Q. 13. Since 1906, has it had in operation that present tall stack?

A. I think so, yes.

Q. 14. What was the effect of putting that stack in operation, as to the sulphur dioxide, the area affected by it?

A. It extended the area, but relieved the condition in the immediate vicinity of the stack, because the gases were carried over and beyond, and they would come down towards the earth at a further distance out, therefore they extended the area of damage.

Q. 15. You visited the section repeatedly, I believe you say. I will ask you if you remarked any change in conditions in North Georgia and Fannin County, after the two copper companies built and equipped their present acid plants and put them into operation?

A. Yes, sir, it seems to me that there was a marked im-
1191 provement in the conditions. The first time I noticed was
when the attorney general sent me up here in April, 1908. I think I drove through the country from Blue Ridge at that time, and observed the situation, and vegetation, and asked questions from residents and farmers along the road, et cetera, and my report to him was that there seemed to be marked improvement.

Q. 16. When the Ducktown Company put its plant into operation in 1909, was there much change in the conditions of the territory that was effected by the operations of its plant?

A. It would be impossible for me to have told whether it was due to that or not, because there are, and always have been a great excess of sulphur gases generated, which were not taken care of, and it would be impossible to say whether it would be due to the Ducktown plant or not, but it is reasonable to conceive that when they began to take care of the sulphur contents of the gases, there would be some improvement.

Q. 17. Was the Tennessee Company's acid plant at the outset as large as it is not?

A. No, sir.

Q. 18. Do you recall whether or not about two years ago, they very much enlarged their plant?

A. So I understood.

Q. 19. Have you been through that North Georgia section right recently, since you have been up to Ducktown on your visit?

A. Well, I was there last September, on the visit with Mr. Gilchrist which he has been describing. At that time we did not drive through the country as I had previously. We got off the train at Ducktown and drove over through the country. It has been denuded of vegetation.

Q. 20. What did you find in that territory, which had been previously denuded of vegetation?

A. Well, there were evidences of gardens being planted in the vicinity of Ducktown plant, and we noticed along the roads, a mile or
a mile and a half around the plant where the residents had
1192 made any efforts to raise gardens or fruit, they were awarded
with success, even luxuriant growth of vines and grasses on
the ridge where we spent the night. It was covered with a heavy growth of grass, and as Mr. Gilchrist stated here on the stand, the wind that night blew the gases towards the house we were sleeping in, and right over that ridge, and evidently there was not sufficient to destroy the grass on that ridge.

Q. 21. You are familiar with the effects of course, of sulphur dioxide on vegetation, you know what that is?

A. Yes, sir, it is destruction.

Q. 22. And you have studied especially with respect to that section of the country, that is the North Georgia section?

A. Yes, sir.

Q. 23. And you are also familiar wtih the operations as conducted normally at the plant of the Ducktown Copper Company?

A. I have known in a general way, I have been there on two occasions, last September I was informed more particularly in regard to the operations.

Q. 24. What do you say as to the possibility or probability of, rather, of the operations of the Ducktown Copper Company, as normally carried on, exerting any harmful effects on the forests and gardens in Fannin County, Georgia?

A. I think it is an impossiblity, absolutely impossible for it to have any effect.

Mr. Drake: We object to that for the reason that I think that answer would answer every issue in this lawsuit, and it does not state the facts sufficiently to justify the opinion.

Exception overruled and appeal taken.

Q. 25. Now, please, sir, state the reasons for your last answer, and state them in detail in your own way?

A. Well, the reasons have already been stated by Mr. Gilchrist,
in his testimony here on the stand, when we made our visit,
1193 the general manager, Mr. Renwick opened his books, and as
Mr. Gilchrist stated, we got the number of tons of ore smelted
every day, we had the analysis of ore, and we calculated from the

analysis of that ore, the amount of sulphur that was charged into the furnace. We then got from the books the amount of sulphuric acid produced from that sulphur, the amount of sulphur left in the matte, and in the slag, and in the flue dust, and various places like that where it did not pass into the air, and calculated all of that sulphur into the amount of sulphur dioxide which would be emitted in the course of one day from the plant, and deducted from the total sulphur charge. And in that way, we found that the company was recovering about seventy-five or eighty per cent of its sulphur and something like twenty-two or twenty-three per cent was being lost. And my recollection of the figures is that there was a total of thirty-two thousand pounds of sulphur, figuring it in a liberal way, making the company bear the burden of certain things that we were not sure of, there were thirty-two thousand pounds of sulphur, equivalent to sixty-four thousand pounds of sulphur dioxide, liberated into the air, and then, we made our calculations on that assumption, which was of course, unfair to the company, that the wind would always come from the north and northwest and blow over all of that sulphur dioxide. We assumed the apex of the furnace, the top of the furnace, the apex of the cone and the base being five miles along the Georgia line and being the basis that we would figure on, and applying our figures to that, there would be something like fifty billion of cubic feet of gas, we calculated on that fifty billion — of gas that would be sent into the state, and there would be a combination of the sulphur dioxide with air in the proportion of about one part to three and one half million parts of air, and that is a greater proportion
than has ever been claimed to be injurious. I think that the
1194 experts all claim that as little as one part in one million is
injurious. That, I believe is where it is continued for any
length of time, not one application.

Q. 26. You say your calculations assume that the entire sulphur dioxide would be transmitted down into Georgia?

A. Yes, sir, our calculations assume that the entire amount would be transmited into Georgia, and taking no account whatever of what would be absorbed by stream, soil and trees, in our estimate, or anything that would deflect it upward into the air, which naturally would be probable where the greater part of it would most likely have been diffused and carried upward, and latterly, and into various other territories, but we assume that it was confined in this figure, and carried in the directions of the State of Georgia.

Q. 27. You knew that would be violent to the Ducktown Company, as a matter of fact?

A. Certainly.

Q. 28. How would the sulphur dioxide content in the territory that is affected, compare with what it would be in cities, say like Chattanooga and Atlanta?

A. In the summertime, only in our report, we made a comparison of the city of Atlanta. The city of Atlanta burns something like about a half million tons of coal per annum, and we figured on three hundred thousand tons, being the actual consumption of Atlanta, would show practically the same amount as turned loose at Ducktown, about sixteen tons.

Mr. DRAKE: I except to that as irrelevant.
Exception overruled and appeal taken.

Q. 29. How much sulphur content in the atmosphere would be south of the Georgia line,—it would not be great- than it is in Atlanta?

A. No, sir.

Q. 30. You spoke of the books having been submitted to you, I will get you to state if they appear to be regular and accurately kept in the ordinary course of business? 1195

A. Yes, sir.

Q. 31. On the occasion of your visit to this Company's office, as a representative of the State of Georgia, in any capacity, I will ask you if there was the slightest hesitation to give you the information for which you asked, or any disposition on their part to conceal anything?

A. No, sir, no, sir.

Q. 32. All means of information were offered you and your parties?

A. Yes, sir.

Cross-examination.

By J. A. DRAKE, Esq.:

Q. 33. Is it not a fact, that atmospheric conditions have a great deal to do with the diffusion of sulphuric acid gases?

A. Yes, sir, they have.

Q. 34. I will ask you if at times these gases do not come out of the top of these stacks, and go off miles apparently without dropping, just a continual stream, is that not a fact, and have you not observed that?

A. I have observed that particularly from the top of the Tennessee stack where it goes out of that high 325 foot stack, and you can see the clouds of gas passing along. I would like to say however, that in regard to the Ducktown stack, it is down below that level, in a low place, and the gases as they come towards the state of Georgia, naturally strike the top of the hills, and pass along the creek, and they are pretty nearly all diffused, which is not the case with the Tennessee stack, it is so high.

Q. 35. And is it not a fact, Doctor, that the Ducktown Company's plant is on higher ground than the Tennessee Company's plant?

A. No, sir, I think it is on lower ground.

Q. 36. I mean with reference to sea level?

1196 A. I do not think it is.

Q. 37. And if it is on higher ground, then you do not understand the local conditions there, do you?

A. The Ducktown plant is down in a basin, and the hills around it are all going upward towards the Georgia line, or higher.

Q. 38. And the hills on which the Tennessee plant is, are higher, is that your observation?

A. That is my idea, that the hills down nearer the Tennessee plant are higher than the Ducktown plant.

Q. 39. If the government survey, the government geod-ic survey shows that this Ducktown plant is on higher ground by 150 or more feet, why you would take that to be the fact, would you not?

A. Yes, sir.

Q. 40. And the hills around the Ducktown plant are also lower, are they not, relatively, and the hollows that drop off from them, go down close to the river, or little points or -nolls that mount up are lower?

A. Well, I drove over this and they are higher than the Ducktown plant. That is the plant I am getting at, the local conformation of the ground, the hills around the Ducktown plant are up above it and therefore the gases strike the top and sides of these hills, and are obliged to crawl over.

Q. 41. You mean that is the way it appears to you from your observation, you do not mean that you made any survey, or assisted to make a survey to see which plant was on the higher ground?

A. No, sir.

Q. 42. Now, have you looked at the government map to ascertain the elevation?

A. No, sir.

Q. 43. If it is a fact that the Tennessee Copper Company's plant is at an elevation of fifteen hundred and sixty feet, and the place of the Ducktown plant is at an elevation of sixteen hundred and
1197 twenty feet, then the Ducktown company would be on higher altitude, would it not?

A. It would be on a higher altitude, yes.

Q. 44. There would not be so much elevation between the top of the two stacks as would appear just from looking at them?

A. No, but even then there is 325 feet of stack which has to be added to the heighth of the ground that it stands on.

Q. 45. But that would make it something like,—the Ducktown Company's stack is seventy feet high and the other three hundred and twenty-five feet high, and taking its elevation which I have given you, the Tennessee stack, the top of it, would not be more than 170 or ninety feet higher than the other?

A. No.

Q. 46. Now, Doctor, there is no vegetation or trees of any kind on those hills between the Ducktown Company and the Georgia State line, are there?

A. No, sir, no.

Q. 47. I will ask you if timber or any other kind of vegetation on those hills, would not have a tendency to dif-use or stop the fumes if they were to come in contact with them?

A. Yes, it would have that tendency of course. The timber has all been robbed from those hills, between the Ducktown Company and the State line.

Q. 48. And the only investigation I believe you say you made last year was in September, at the time you and Dr. Gilchrist was there, was it?

A. Yes, sir.

Q. 49. Do you remember the date of the visit?

A. About the middle of September, about the 13th, I think it was.

Q. 50. Have you been there this year?

A. No, sir, I have not been there since.

1198 Redirect examination.

By W. B. **Miller**, Esq.:

Q. 51. Is vegetation returning on those hills near the Georgia line?

A. I have not been there since 1910.

Q. 52. You are not able to say?

A. No, sir.

Q. 53. What direction are those houses in which you spent the night from the Ducktown Company's plant, when there in September?

A. I think likely northwardly, and I judge about a quarter of a mile from the plant.

Q. 54. Facing the plant?

A. Yes, sir, about in line with it.

Further this deponent saith not.

—— ——.

Sworn to before me this 20th day of June, A. D., 1914.

—— ——,
Clerk and Master.

1199 STATE OF TENNESSEE,
County of Hamilton:

I, Chas. M. Fain, Notary Public, in and for said state and county, and stenographer, certify that the foregoing transcript is a true and correct, and honest transcript to the best of my skill and ability of my notes taken in shorthand.

This June 28th, 1914.

(Signed) CHAS. M. FAIN. [SEAL.]

Original. In Equity.

1200 No. 1.

THE STATE OF GEORGIA, Pl't'f,
vs.
THE TENNESSEE COPPER COMPANY and THE DUCKTOWN SULPHUR,
COPPER AND IRON COMPANY, LTD., D'f'ts.

The depositions of W. F. Naughan and others, taken on behalf of the defendants, the Ducktown Sulphur, Copper and Iron Company, Ltd., commencing Thursday, June 18th, 1914, in the city of Chattanooga, Tennessee, pursuant to a notice hereto attached, in the presence of J. A. Drake and Lamar Hill, representing the State of Georgia, and J. A. Fowler, George G. Hyatt, and W. B. Miller, Esqs., representing the defendants.

1201 The hour growing late, and it being more convenient for all parties concerned, an adjournment was taken in the hearing of depositions in this cause until Monday, June 22nd, 1914, at Knoxville, Tennessee, in the Federal Building.

Pursuant to adjournment, the further taking of depositions in this cause was resumed at ten o'clock A. M., on Monday, June 22nd, 1914, at Knoxville, in the Federal Building, the witnesses being sworn by the Deputy United States District Court Clerk.

1202 CONNIE MARTIN HAENSLAER, the next witness called, being first duly sworn, upon direct examination testified as follows:

Direct examination.

Questions by J. A. FOWLER, Esq.:

Q. What is your age, Mr. Haensler?
A. Twenty-five years past.
Q. Where do you now live?
A. Knoxville, Tennessee.
Q. What is your business?
A. I am in the University of Tennessee, a student. I have been for the past year. I am now assistant to Prof. Bain.
Q. In what class are you in the University?
A. I have just graduated.
Q. That is, you were a juni*ro* during the previous year?
A. Yes, sir.
Q. You are Professor Bain's assistant?
A. Yes, sir. Well, not assistant in college work, but assistant in the experiment station work, that is separate.
Q. State whether or not you recently made a visit to the locality surrounding Ducktown?
A. I did.

Q. At whose instance did you make that visit? I say at whose instance did you go there; who got you to go there?

A. Prof. Bain.

Q. When was it you went there?

A. I went down on the 16th of June, and on the 17th I collected the specimens in this country, and on the 18th I came back.

Q. You mean the 16th, 17th and 18th of June, this month?

A. Yes, sir, the present month.

1203 Q. Where did you go?

A. I got off at Ducktown and then went to Copperhill.

Q. Did you stay there all night of the day you got there and the next day?

A. On June the 17th I started out of Copperhill on foot, and walked from Copperhill through to Mineral Bluff, and on that trip is where I got the specimens, after which I came back to Knoxville.

Q. Did you get the specimens along the road from Copperhill to Mineral Bluff?

A. Right along the river, I followed the river and the creeks, not along the road.

Q. Which river?

A. The Tococoa River and the Wolf Creek, and Hothouse Creek.

Q. How far did you go up Wolf Creek?

A. I could not state the mileage, I can show you on the map. I crossed this valley, here is a ferry, and the bridge crosses here, and here is a point with red letters 1498 on the map.

Q. And then, how far did you go beyond that?

A. Then, I went to a farm up here, I suppose it must be about this direction. I did not pass the farm, it was on the south of the river going up, and then it must have been about this point was a clearing, that I did not go beyond the farm on the creek.

Q. Now, did you collect any specimens along on Wol*k* Creek?

A. Yes, sir.

Q. Yes, sir.

Q. How many?

A. Twenty-four.

Q. What kind of specimens were they?

A. They were different kinds, some pines, some oaks, some rhododendrons, commonly called tulip pop*u*lar.

1204 Q. Now, were those specimens scattered all the way from Wolf Creek, as far as you went?

A. Yes, there was one section after I got started that I did not get any in, that was between the mouth of the creek and a little ways up, I did not get any specimens along there.

Q. Why did you not get any specimens along there?

A. There was a clear*n*ing and a farm that I went through, and I went through the field.

Q. Then, did you, or not, get specimens wherever timber was growing along.

A. I did, at intervals.

Q. Had you, or not, gotten up into the hills when you turned back?

A. I got about on the north side of the creek, the hills start just about at the creek, and I went probably half way up the hill, in order to get some pine.

Q. After you got through collecting specimens on Wolf Creek, what did you do?

A. I crossed Wolf Creek, and then went back to this bridge—the road.

Q. Do you mean the road shown on the map going south from the red figures marked 1498?

A. Yes, sir.

Q. Did you follow that road?

A. Yes, sir.

Q. Where did you go?

A. I struck the Tococoa River right there (indicating).

Q. Did you gather any specimens along that road?

A. No, sir.

Q. Why did you not gather specimens there?

A. I had instructions to get them along the river, and along Wolf Creek, and along Hothouse Creek.

Q. Then where did you get the remainder of your specimens?

1205 A. I got a few at Hothouse Creek, and Wolf Creek, scattering them along.

Q. What kind of specimens were those?

A. I can give you those by referring to my notes. Twenty-six to thirty-two inclusive.

Q. That is, you mean specimens from twenty-five to thirty-two inclusive?

A. Twenty-six to thirty-two inclusive, I got along the Tococoa River, between the road and the Hothouse Creek.

Q. How far did you go up Hothouse Creek?

A. I went up—this map does not completely show it.

Q. About how far was it?

A. I guess, I think about three miles.

Q. Did you gather any specimens up Hothouse Creek?

A. Yes, sir.

Q. How many?

A. Specimens thirty-three, thirty-four and thirty-five right at the corner of the river and the creek, the junction, that is, I call it that, between the creek and the river, and from there to the end is number fifty-four, I got along Hothouse Creek.

Q. Were those all the specimens you got, fifty-four?

A. Yes, sir.

Q. I wish you would explain how you obtained these specimens?

A. I got them all with an instrument Prof. Bain had, and instrument borer.

Q. Explain how that operates.

A. It is an instrument with a thread cut on it, that forces its way into the trees, I mean this thread, cutting out a core, which is about a fourth of an inch in size.

Q. I do not understand.

1206 A. It cuts out a little round core.

Q. How large is that, is what I asked.

A. About one-fourth inch.

Q. About a quarter of an inch?

A. Less than a quarter of an inch should think—well it is near that, I should guess.

Q. Now, then, what did you do with these specimens?

A. I brought them to Knoxville, and turned them over to Prof. Bain.

Q. Who did you turn them over to?

A. Prof. Bain.

Q. Did you help him classify them afterwards?

A. I numbered them.

Q. Did you do the numbering?

A. Yes, sir.

Q. And they numbered what?

A. From one to fifty-four, inclusive.

Q. When did you turn them over to Prof. Bain?

A. That afternoon, the afternoon of the 18th.

Q. When did you number them?

A. That afternoon, when I got back.

Q. Did you leave them in his possession?

A. Yes, sir.

Q. Have you seen the specimens since?

A. Yes, sir.

Q. When did you see them?

A. I saw them the next morning, and I should have said that I finished numbering them the next morning.

Q. State whether or not you have assisted in enlarging a picture of a portion of one of these specimens?

A. I have.

Q. When was that done?

A. That was done yesterday, Sunday.

1207 Q. What kind of a specimen was that?

A. That was a pine specimen.

Q. Where did you get that specimen?

A. That was the last specimen collected. Number fifty-four, on Hothouse Creek.

Q. Three miles up Hothouse Creek?

A. Yes, sir.

Q. You say that was the last one you collected, number fifty-four, going up Hothouse Creek?

A. Yes, sir.

Q. That was the furtherest away up Hothouse Creek?

A. Yes, sir.

Q. Have you that specimen present with you?

A. I have.

Q. I wish you would file it and have it marked Exhibit "A" to your deposition.

A. I do so.

A. I do so.

Q. Have you the other specimens with you, or are they in the possession of Prof. Bain?

A. I cannot say, I have two others here.

Q. Will you please have the other ones gathered by yourself, which you have present here, marked as Exhibit No. two to your deposition?

A. I will do so.

Q. Where did you get these two specimens?

A. I only got one of these, this pine No. forty. Specimen number forty is from the bank of Hothouse Creek.

Q. How far up the Creek?

A. At the first point of the creek, there is a bend almost a horsshoe bend.

Q. Did you make any observations as you went along as to whether or not there was any smoke damage?

A. No more than a casual observation. I was rushed to get through with that section.

1208 Q. You were not sent there for that purpose, of taking observations?

A. No, sir.

Q. Are you familiar with smoke damage?

A. Well, I have been on one other trip before, otherwise I have had no experience with it.

Q. Did you see any evidence of smoke damage at any time on this trip?

A. I did.

Mr. Drake: I except to that, because the witness has had no experience, and cannot qualify as an expert.

Exception overruled, appeal taken.

A. (Continuing:) I started from Copperhill where the hills are bare.

Q. What I wanted to know about, was while going up those rivers and those creeks, and looking at the foliage up there, was there any apparent damage done to the foliage this year?

A. There was one place where the leaves were scorched for some reason, but for what reason I do not know.

Q. Where was that?

A. I could not make a definite statement of that, because I did not have instructions to take notice of that kind of injury, and I did not take any. I could not recall definitely enough about it, to make a statement.

Cross-examination.

Questions by J. A. Drake, Esq.:

Q. As I understand you, Professer, you were sent out only to obtain some wood samples?

A. Yes, sir.

Q. And not to hunt for smoke damage?

A. No, sir.

Q. If you were hunting for smoke damage, you would have found a good deal more, don't you suppose?

1209 A. I do not know that I could recognize it, if I should see it.

Q. If you had been sent out especially to hunt smoke damage, you would have been very apt to have found it?

A. I do not know that I would, because I took any three that came to my reach, without especially noticing the looks, along the creek, and took samples and kept them.

Q. As I understand, these specimens were gotten by a boring machine, which bored in and took out a core?

A. Yes, sir.

Q. And you bored into a tree to get them?

A. Yes, sir.

Q. Into the tree about how deep did you bore?

A. You could go about three or four inches, and then you would stall. Into pine,——

Q. (Interrupting.) You would go further into soft wood?

A. Yes, sir, about seven inches.

Q. That poplar you were talking about getting a sample of, I will ask you if in common terms that is not a shade poplar, that we use in this country in yards for a shade tree?

A. It is used as a shade tree to some extent.

Q. Is it not the old-fashioned poplar?

A. It is not what I think the yellow poplar is.

Q. Do you know what that yellow poplar is?

A. I think I know.

Q. Is it not the yellow poplar?

A. It is not the yellow poplar.

Q. Are you an entomoligist? Is that your special course?

A. No, sir.

Q. You are just——

A. (Interrupting.) An agricultural student.

Q. An agriculturist, that is your special line?

1210 A. Yes, sir.

Q. All the way you can identify any of these specimens you put in here is by referring to your note book?

A. Yes, sir.

Q. You cannot, independent of your notes, tell a thing about them, can you?

A. I would know they were my specimens, that is all. I would not know where I collected them.

Q. Look at this specimen you have here?

A. I beg your pardon, I could tell approximately the region, because I numbered them in consecutive numbers.

Q. What is the number of this specimen I hand you now?

A. That is not my specimen.

Q. Answer me, what is the number of that, I want you to identify it?

A. That is Number 222.

Q. What kind of wood is that?

A. I would not be able to state, I would not want to say.

Q. Will you please file that as Exhibit No. 3 to your deposition?

A. I do so.

Q. And who got that specimen, Professor, if you know?

A. I was not there, I suppose Prof. Bain did.

Q. Something is very seriously wrong with that, isn't there?

A. I do not know what you mean by "wrong."

Q. I mean is it in a healthy, normal condition for wood of that kind?

A. I do not know that I would be qualified to state as to the health of the tree.

Q. What was the purpose, was not that the purpose, Professor, of your getting these samples?

A. I beg your pardon, I am not a Professor, I am a student.

1211 Q. I thought you said you graduated.

A. I did graduate.

Q. What was the purpose of your getting these samples, to show the normal healthy growth of timber, or otherwise? And showing the markings of its growth?

A. It was to show the growth of the timber.

Q. And the growth of that wood shows whether or not it was diseased or abnormal, would it not?

A. It should do it.

At the witness' request, he was allowed to make the following correction:

The correction is, that I made the statement that I finished marking the specimens the following morning. I remember now distinctly that I finished them that night because I had intended to finish the next morning, and Prof. Bain got a phone message that he must be in Chattanooga the following morning instead of the afternoon, and I finished them that night.

Further this deponent saith not.

—— ——.

Sworn to before me this 22nd day of June, A. D., 1914.

—— ——,

Deputy Clerk U. S. Dist. Court.

The total distance traveled by this witness from his home to the point of giving his deposition, and return, was — miles.

1212 W. T. S. Dickey, the next witness called, for further examination, deposed:

Direct examination.

By J. A. Fowler, Esq.:

Q. 1. State, Mr. Dickey, whether since your examination at Chattanooga, you have gone over another section of North Georgia?

A. Yes, sir, I was out over a section of the country.

Q. 2. Please describe what section you have gone over since that time?

A. We went out from Blue Ridge, out up the river to the Flat Creek country, a place out there known as the Flat Creek country.

Q. 3. Now, what stream does that creek empty into?

A. Into Tococoa, or Okoee, they call it up in Tennessee.

Q. 4. About how far above the state line?

A. As the road runs it must be some twenty miles, I should say eighteen or twenty miles, perhaps twenty miles.

Q. 5. How far is it on an air line?

A. Possibly not over twelve or fourteen miles, fifteen miles possibly, I could not tell just exactly.

Q. 6. In what direction does Flat Creek run from its source to its mouth in the river?

A. It runs north.

Q. 7. Is it not East?

A. A north-east course, perhaps, likely it is a north east course.

Q. 8. How far did you go up Flat creek?

A. I went up Flat Creek up to within a mile and a half of the head of the creek, and where is two prongs of it, and we came out of that one and went up on the other prong up toward the head of it.

Q. 9. How many miles did you cover?

1213 A. How many miles?

Q. 10. Going up the creek?

A. Going up the creek, I should say the two directions we went we covered, I did, individually, I was not right well, and I did not go as far as some of the other parties did, up there, understand, but I suppose I went three or four miles on the two prongs of the creek, perhaps four miles.

Q. 11. State whether or not you made a careful observation of the timber and the vegetation as you went along?

A. Yes, sir.

Q. 12. For what purpose did you go up that creek?

A. I went up there to see about the timber.

Q. 13. Who was in the party?

A. Myself, and Mr. Quintrell, Mr. Bob and G. P. Dickey, the four of us.

Q. 14. When was it you went up there?

A. Sunday afternoon.

Q. 15. I wish you would state, Mr. Dickey, in what condition you found the timber and vegetation in general?

A. Well, sir, it seemed to be in a very flourishing condition up there, fresh, that is I thought it was, as I ever noticed on Flat Creek. I used to be in the timber business there in 1906, and the foliage is perhaps, appears to me to be more vigorous than in 1906 and 1907. You could see signs of smoke then, and I did not see any sign of smoke on this trip.

Q. 16. What was the extent of signs of smoke in 1906, and '7?

A. You could see quite a good deal of it on the leaves there. There is some tall mountains up there covered with chestnut timber, a lot of fol*l*iage you could see away up toward the top of the mountains strips of dead leaves, extending may be for a half of a mile along the ridge. I remember visits when I was up there in 1906 and '7, you could see them somewhere along there.

1214 Q. 17. You say you were in the timber business at that time?

A. Yes, sir.

Q. 18. You mean you were buying and selling timber lands?

A. No, sir, we were shipping chestnut cord wood, and cross-ties out of the section, floating them down the *Toccoa* River, floating them down to Mineral Bluff and taking them out at a boom, working for a Boston Company.

Q. 19. Did you sell any land in there at that time?

A. How?

Q. 20. Where were your lands located then?

A. Well there was a lot adjoining Mr. Shippen's lands in which he and his brother were interested up there I think at that time.

Q. 21. Where was that land situated with reference to Flat Creek?

A. It was on the lower part of Flat Creek, come right down to the river and extended a half mile, as the lot of land does, up the creek. The creek runs about through the middle of the lot of land.

Q. 22. You say that was adjoining Mr. Shippen's land?

A. Yes, sir, adjoining Mr. Shippen's land.

Q. 23. In what direction was that from Mr. Shippen's land?

A. It was south of Mr. Shippen's land.

Q. 24. How much was there of the tract you sold?

A. 160 acres.

Q. 25. You say at that time you noticed considerable evidence of smoke damage?

A. Yes, sir, in 1906, and 1907, you could see, I do not know to what extent it injured the timber at that time, you could see it on the leaves.

Q. 26. Was there any dead timber resulting from it, or apparently resulting from it?

1215 A. Not that I remember sir, I could not state about that, because it has been some time ago, I just noticed the evidence of it on the fol*l*iage in 1906.

Q. 27. When you were there two or three days ago, did you notice any evidence of smoke damage during the present year?

A. I could not see any damage during the present year whatever.

Q. 28. Were you on Flat Creek last year?

A. Last year?

Q. 29. Yes.

A. No, sir, I was not on Flat Creek last year.

Q. 30. Were you there the year before?

A. No, sir, I have not been over in there for three or four yea until the other day.

Q. 31. On the trip the other day, did the gardens and vegetatio look good on Flat Creek?

A. They had nice gardens, and a lot of fruit, we remarked abo the fruit being in better condition up there than in our section of t country. The trees loaded with fruit, some of them bending under the fruit.

Q. 32. How did the corn look?

A. Looked all right.

Q. 33. Did you see any oat fields?

A. Yes, sir, we saw oat fields down the mountain this side of Flat Creek, I suppose a mile across the mountain, or something like that. I saw as fine a piece of oats as I have seen anywhere except in South Georgia, I was out where they were cutting oats, it was as fine a piece of oats as I saw in South Georgia.

Q. 34. Do you not know, except from hear-say what kind of mast they had in there last year?

A. No, sir. I was not in there last year. This year the chestnuts are just in bloom now, and the prospects are fine for a good mast, the chestnuts this year, up to this time the whole mountain sides, the chestnuts are in bloom and we were talking of the possibility of a heavy mast—— 1216

Mr. **Dranke**: We except to that as being hearsay.

Exception overruled and appeal taken.

Q. 35. Does the chestnut timber appear to be in a healthy condition through that section?

A. Yes, sir, all the timber up there seems to be in vigorous growth, and the foliage on it is very dense and heavy.

Cross-examination.

By J. A. **Dranke**, Esq.:

Q. 36. Who was with you on this trim the other day, Mr. Dickey?

A. Mr. Quintrell, Mr. Baugh, Mr. Dickey and myself.

Q. 37. Mr. Quintrell is a witness that testified at Chattanooga, didn't he, the other day?

A. I do not know, sir, whether he testified or not.

Q. 38. Was he not down there the other day when we were all down there?

A. Yes, sir.

Q. 39. He is the man that lives on No. 20 mine, down there in Georgia, don't he?

A. I could not tell you just where he lives.

Q. 40. Were you and Mr. Quintrell here in the employ of this Copper Company, are you not?

A. I am not, no, sir.

Q. 41. Did you just volunteer your services and go and make that fifteen or twenty mile trip?

A. Yes, sir.

Q. 42. They did not pay you to?

A. They did not.

Q. 43. You are very much in sympathy with them?

1217 A. I am very much interested in the Tennessee Copper Company, and the Ducktown Copper Company, both, sir.

Q. 44. You are interested in them?

A. In that where I own property up there, I am interested in that way.

Q. 45. And for that reason you volunteered to go and get this evidence to help them out?

A. Yes, sir; I volunteered.

Q. 46. You saw plenty of smoke damage in Georgia, didn't you?

A. No, sir, I did not.

Q. 47. At any point in Georgia?

A. No, sir.

Q. 48. You could not see any smoke damages anywhere?

A. I have not seen any this year.

Q. 49. You have not seen any smoke damages this year?

A. No, sir.

Q. 50. If there was any you could see it on that trip?

A. Why I could likely see it, yes, some more or less, for I was out looking for those things, if there was any smoke damage I did not observe it.

Q. 51. In fact, you just went along the road, didn't you, were you on a horse or in a buggy.

A. No, sir, an automobile.

Q. 52. Then you stayed in the big road?

A. We stayed in the big road until we got out of the automobile and walked around in the woods.

Q. 53. If you had been looking for smoke damage, you would have gone up on the sides of the mountains.

A. Yes, sir, we did go up on the side of the mountains, I did not go up as high as some of the other parties.

Q. 54. Is it not a fact, you went down there to hunt for the absence of smoke, more than to find any?

A. No, sir. We went to see if we could find any.

Q. 55. Who was your conductor and guide as to the points at
which you would get out of the automobile and go up on the
1218 mountains and hills?

A. I do not really know that we stopped until we got up to those two prongs of the creek, you can go up one prong of the creek on the road, and you will have to get out of the automobile and go up the other. When we got to the place to go up the left hand prong, every body knew that we had to go, I do not know that we had any particular guide.

Q. 56. Did you say all who went in the crowd?

A. The four parties I have mentioned, awhile ago, John Quintrell, Mr. Baugh, and G. P. Dickey.

Q. 57. How many times did you get out of the automobile?

A. How many times did we get out of the automobile?

Q. 58. Yes.

A. I do not know, we were out of the automobile two or three times while up there. We left the automobile and took up the left hand prong of the creek, I did not go to the head.

Q. 59. Leaving Copperhill,—that is where you started from?

A. No, sir.

Q. 60. Where did you start from?

A. Mineral Bluff.

Q. 61. Leaving Mineral Bluff, which way did you go?

A. Over to Blue Iidge.

Q. 62. They you did not go through that country between Blue Ridge and Copperhill on this trip at all, did you?

A. No, sir. We did not go through on this particular trip, no.

Q. 63. How long since you have been through that section of Fannin County?

A. Yesterday on the train. I have not been through it any other way for some time.

Q. 64. If you were wanting to find some smoke damage in there would not the best place to find it be down there closer to these Companies, down within a few miles say of the State line?

1219 A. I should think that would be natural, yes.

Q. 65. And is not there thousands and millions of timber killed through that country from some cause?

A. There is dead timber in there, yes, sir.

Q. 66. It is not a normal forest is it, anywhere north of Blue Ridge?

A. It seems to me we had some pretty normal forests on the Flat Creek Country when we got to the head there is as nice a forest out there, the timber has been cut out of our part of the country largely.

Q. 67. I am asking about the country north from Blue Ridge, coming from there toward the Copper Companies, is that normal forest?

A. No, sir, it is not.

Q. 68. I will ask you if the ratio of dead timber does not increase very noticeably as you approach these copper companies?

A. You have been up there, I suppose at the Copper Companies, then you pass down the road, there is no timber at all for miles around the Copper Company, anybody knows that, for miles, that is unless it is small growth, growed up in late years, there is some of that for some miles around there.

Q. 69. Was any employee of the Company with you Sunday?

A. Not that I know of.

Q. 70. Mineral Bluff is how far from these Companies?

A. About ten miles.

Q. 71. Then in going from there, Mineral Bluff, why did you go in an opposite direction from the Companies, or is Flat Creek toward them?

A. It is in the opposite direction from the Companies South east.

Q. 72. You went on east then?

A. Yes, southeast.

Q. 73. And the nearest point you were to the Companies on 1220 that day was when you started from your home?

A. Yes, sir.

Q. 74. I do not remember whether you stated the other day, I will ask you again, if you have seen or smelt any smoke over there this year?

A. At Mineral Bluff?

Q. 75. Yes?

A. Yes, I have seen smoke, on one or two days, I could detec the odor of the smoke this year.

Q. 76. Well, who suggested to you and your party to make thi automobile trip of investigation on Sunday?

A. Mr. Quintrell came to my house and asked me to go with him

Q. 77. You testified down at Chattanooga, and then you wen home and went out to make these private inspections on your own initiative, *of* that of Mr. Quintrell, I believe?

A. Yes, sir, I went with Mr. Quintrell on this last trip, he cam and asked me to go with him.

Q. 78. And Mr. Quintrell is in charge of Mine No. 20, down there

A. I could not tell you about that.

Q. 79. And he is an employee of the copper companies?

A. If he is, I do not know it.

Q. 80. And has he not for years been making his living off o copper companies, and does he not make it that way now?

A. I do not know sir, how he makes his living. I think Judg Howe has him employed, I have been told so at least to look afte some property he has over in Georgia.

Q. 81. And Judge Howe owns that Copper mine, No. 20?

A. I have heard so, yes, sir, that he owned some property ove there, I do not know what it is.

Q. 82. And you were sworn and testified in Chattanooga
1221 and did you not stay in the Court room afterwards and hea
a number of the witnesses testify after they got through wit
you?

A. Yes, I heard some of the witnesses. I believe, I am pretty sur I was in there.

Q. 83.

Mr. DRAKE: We want to except to all of the evidence introduce this morning, because he was under the rule and did not observe it therefore, I think that his evidence is incompetent.

Exception overruled and appeal taken.

Q. 83. And is it not a fact that you stayed in the court room an heard a line of questions that were being asked, and from that lin of questions, did you not get the idea that caused you to make tha trip hunting up proof for the copper company?

A. No, sir, I did not know anything about it, when I left Chattanooga, that I would go to Flat Creek. They asked me some questions, I remember, when I was in Chattanooga about Flat Creek I did not know anything about it at that time.

Redirect examination.

By J. A. FOWLER, Esq.:

Q. 84. Mr. Dickey, were you asked anything about Flat Cree on your former examination?

A. It seems to me like I was.

Q. 85. That was on cross-examination?

A. On cross-examination, I think, yes, sir.

Q. 86. Did you hear anybody testify at Chattanooga about Flat Creek country at all?

A. I did not, sir.

Q. 87. Was there anybody asked about Flat Creek, who knew anything about it?

A. Not that I heard of. I was talking and knew nothing about it.

1222 Q. 88. And then you went down there to inform yourself about it?

A. Yes, sir.

Q. 89. You were asked, or you stated on one or two occasions you had smelled smoke at Mineral Bluff?

A. Yes, sir.

Q. 90. When was that, do you remember?

A. It was,—I would not be positive about that, but it was on Monday or Tuesday, two or three weeks ago, I believe, a couple of weeks ago, one Monday perhaps, I would not be positive about that.

Q. 91. You stated you had an interest in these Copper Companies, please explain that interest?

A. My interest is, I have property at Mineral Bluff own my own property there, own property in the town, and what I am worth is up there.

Q. 92. Have you got one dollar invested in either one of these companies?

A. Not a dollar.

Q. 93. So, this interest is in the welfare of the community, the main interest?

A. It is my interest in the welfare of the community, and my own interest, I consider my property would be worth less than fifty cents on the dollar to what it is today if the mines were closed.

Mr. DRAKE: I except to his conclusions as immaterial, irrelevant and incompetent.

Exception overruled and appeal taken.

1223 Recross-examination.

By L. HILL, Esq.:

Q.* 94. You have heard the witnesses testify, or asked questions about Flat Creek Country, have you not?

A. I do not remember anything about it except on cross examination I was asked on Cross examination about it, I think.

Q. 95. Did you hear some of the other witnesses asked about that too?

A. Not that I remember of.

Q. 96. Do you remember the names of the witnesses who were in the room and examined when you were in the room?

A. Yes, I believe I remember some of them?

Q. 97. Give the stenographer the names of some of the witnesses.

A. Tom Byers, was in there after I was examined, Mr. Thomas Byers was in there.

Q. 98. Who else?

A. Mr. P. F. Williams, I believe was examined after I was in there, after I was examined.

Q. 99. Do you remember any other one?

A. I do not think so, I do not remember anybody else.

Q. 100. Were you not in there when they examined witnesses, nearly all day Saturday?

A. No, sir, just a little while Saturday, I was not in there at all Saturday.

Q. 101. You cannot recall but two witnesses who testified after you were examined and while you were in the Court room?

A. I do not think of but two, that is all, I left at six o'clock Saturday morning for home.

Q. 102. Did you hear Mr. Quintrell testify?

A. No, sir.

Q. 103. Or Mr. Fouts?

A. No, sir.

1224 Q. 104. Or Mr. Hampton?

A. No, sir.

Q. 105. Or Mr. McNelley, you heard him testify?

A. Yes, sir, I heard him.

Q. 106. You heard Mr. Curtis?

A. I do not think I was in there.

Q. 107. He was the second witness after you, right after Mr. McNelley?

A. I might have been in there, I do not remember hearing him testify.

Q. 108. You said you heard Mr. P. F. Williams and Mr. Byers?

A. Yes, sir.

Q. 109. Did you hear Mr. Baugh?

A. I was in there when Mr. Baugh was testifying, I do not remember any of his testimony.

Q. 110. You were in there?

A. I think so.

Q. 111. Did you hear Mr. Turner?

A. No, sir.

Q. 112. Mr. Richards?

A. No, sir.

Mr. HILL: That is all.

Further this deponent saith not.

—— ——.

Sworn to before me, this 19th day of June, A. D. 1914.

—— ——,
Clerk and Master.

The distance traveled by this witness from his home to the place of taking of his deposition, was a total of 252 miles.

1225 C. G. BAUGH, being recalled, upon further examination, deposed:

Redirect examination.

By J. A. FOWLER, Esq.:

Q. 1. Mr. Baugh, since your examination at Chattanooga have you made a trip over and through a portion of North Georgia Mountains?

A. Yes, sir.

Q. 2. When did you make that trip?

A. Last Sunday.

Q. 3. In connection with whom did you go through that section?

A. With G. P. Dickey, William Dickey and John Henry Quintrell.

Q. 4. At whose instance did you go?

A. The D. S. C. & I. Company, for them.

Q. 5. Who came to you to get you to go?

A. I first received a telegram.

Q. 6. From the Company?

A. From the Company, yes, sir.

Q. 7. Which one of the officers?

A. Well, it was signed, D. S. C.

Q. 8. Then who was it that came to you, Mr. Quintrell?

A. Mr. Quintrell.

Q. 9. Where did you go, Mr. Baugh?

A. We went up the river in an automobile to Flat Creek, and then up Flat Creek, from the mouth to the head, Quintrell and I, and William and G. P. Dickey went about half way.

Q. 10. You went clear to the head?

A. Yes, sir.

Q. 11. How far was that up the creek?

A. I would say some two or three miles.

Q. 12. What did you do as you went along up the creek?

A. We looked at the timber on both sides of the creek.

1226 Q. 13. Did you make a careful observation of it?

A. As careful as we could, walking along, looking with our eyesight.

Q. 14. Did you go up both sides?

A. Yes, sir.

Q. 15. Did you notice the vegetation as you went along and the gardens and fields and crops?

A. Yes, sir.

Q. 16. State whether or not you saw any evidence at all of any smoke damage during the present season?

A. We could not see any what we called damage during this season.

Q. 17. What was the condition of the foliage on the forest?

A. It was in very good condition, green and growing.

Q. 18. Did the leaves appear in any way to have been burn- by smoke?

A. None that I could see.

Q. 19. What was the condition of the crops?

A. The crops looked well, the corn looks fairly well, the potatoes, oats and wheat.

Q. 20. Were there any evidences on any of the leaves that they had been burnt by smoke or affected by it in any way?

A. I did not notice any at all.

Q. 21. How much territory did you cover in making that inspection?

A. Well, we went from the mouth of Flat Creek to the head of it, I suppose that was a distance of two or three miles, then we come back and got into the automobile and went across the ridge up to another prong, to the head of it.

Q. 22. What was the condition up that prong?

A. The condition up both prongs were about the same so far as foliage was concerned.

Q. 23. Did you notice any oats?

A. Yes, we noticed a field of oats in the Flat Creek section, I suppose it was the Ledford property. 1227

Q. 24. What was the condition of those oats?

A. They were looking good, a good oats crop.

Q. 25. Were you on any of the land that belongs to Mr. Shippen?

A. Yes, sir.

Q. 26. What was the condition of the forest on those lands?

A. The forests on those lands looked green and growing.

Q. 27. Was there anything apparently wrong with it?

A. *It* did not notice it, it looked as well as any forests I have been over.

Q. 28. You have seen, oft times, forrest which has been affected by the sulphur fumes, haven't you?

A. Yes, sir.

Q. 29. At one time you were sherif- of your county or surveyor?

A. No, I am surveyor now.

Q. 3-. Have you, or not travelled through that country a great deal?

A. Yes, a great deal over Fannin County, different parts of the county.

Q. 31. Do you know anything about that section last year?

A. I was not there last year, I was in that section in 1911, and not last year.

Q. 32. Not since 1911?

A. Not in that immediate section.

Recross-examination.

By J. A. DRANKE, Esq.:

Q. 33. What did that telegram say that you got?

A. I have it here, I think.

(Witness refers to telegram.)

Q. 34. You cannot remember without referring to it?

A. I do not think I could remember. (Handing telegram 1228 to Mr. Dranke.) You might read it into the record, it will tell exactly what it says.

Mr. Drank: You can read it.

Witness (Reading:) "June 20th, 1914, Copper Hill, Tenn. "C. G. Baugh, Mineral Bluff. "Meet John Quintrell with Dickey at Blue Ridge early Sunday morning, S. S. C. & I. Company."

Q. 35. You are on very intimate terms with this Copper Company, are you not, Mr. Baugh?

A. I am not on bad terms with it as I know of.

Q. 36. If not, why were you willing to obey a telegram like that without any explanation of what they wanted you to do, or anything of that kind: and why would they have taken the liberty to have called on you to make a trip like that on Sunday?

A. Well, I received the telegram and went to Blue Ridge, and also went from there in the automobile as I stated.

Q. 37. Can you see why they would do that, and why you would obey it so readily?

A. Well, I usually obey telegrams when I wish to do my duty.

Q. 38. Do you think you owe a duty to those Copper Companies to quit your business and go through the country hunting up evidence for them?

A. I——

Q. 39. (Interrupting.) Do you think you owe them that duty?

A. Well, I went——

Mr. Drake: Please answer my question, Mr. Baugh.

A. I could not say that I owed them that duty, I went.

Q. 40. You testified in Chattanooga the other day, did you not?

A. Yes, sir.

Q. 41. I will ask you if you remained there and heard a lot of the evidence that was being introduced?

A. I did not hear any of the evidence that I know of but my own.

1229 Q. 42. You heard enough or got word enough that you knew it was important that you go out and get up this Flat Creek evidence you have been telling about?

A. I did not know anything about this until I received the telegram, and went to Blue Ridge.

Q. 43. And Mr. Quintrell, I believe, is the same gentleman who lives on the property known as Mine No. 20?

A. Yes, sir, I believe he lives on No. 20.

Q. 44. Well, whose house did you first stop at up there on that creek?

A. Well, we stopped at Mr. Davenport's.

Q. 45. Which one of the Davenports?

A. I believe it is Henry Davenport, if I am not mistaken.

Q. 46. That is the man that has got some fine apples up there?

A. I did not specially notice his apples.

Q. 47. Who was it had those fine apples up there, or did anybody have any fine apples that you saw?

A. I noticed apple trees and apples on some of the trees.

Q. 48. Did you not investigate especially to see how the apple crop was?

A. Well, what apples I saw looked very well.

Q. 49. Didn't you investigate and see some that were extra good?

A. They will average very well.

Q. 50. And the trees were being bent down almost breaking.

A. I saw some trees that were full and some that were not very full.

Q. 51. And yet apples are not anything like developed, yet, are they?

A. No, sir, unless they be June apples, June apples are getting ripe.

Q. 52. Were these June apples or late varieties that are planted in that country?

1230 A. I do not know what time they come in, I noticed some apples.

Q. 53. You know a limber twig apple, and a summer apple apart, do you not?

A. I should think I do, possibly.

Q. 54. Did not some body stop you gentlemen and show you gentlemen the best orchard you had seen in years?

A. No one stopped me to show me the best orchard I had seen in years, that is on this trip.

Q. 55. Who else did you stop with on this trip?

A. I do not know, that we stopped with any one else on this trip.

Q. 56. Who else did you see?

A. We saw quite a number of people.

Q. 57. Who, just name one of them?

A. Well, we passed over by Mr. Davenport's, who lives on some of the Shippen land.

Q. 58. That is Henry that you speak of?

A. Yes, sir.

Q. 59. Well, who else?

A. We were on part of Roscoe Miller's land.

Q. 60. Whose land, did you see Mr. Miller?

A. No, sir.

Q. 61. Whose else's land did you see?

A. I could not say, whose land.

Q. 62. Did you see any man up there but Henry Davenport?

A. I did not see Henry Davenport, that day, we stopped at his house.

Q. 63. Did you talk to any of those citizens and ask them about the smoke damage?

A. I do not know as we did.

Q. 64. Don't you know that the best way in the world to have found it, if you wanted to find any smoke damage, would

1231 be to have asked the people where it struck them the worst this year?

A. I was going to look especially for the timber, more than anything else.

Q. 65. You were not investigating anything but the forest, then?

A. I was looking at the forest principally.

Q. 66. You did not see any Irish potatoes that were smoke bit, did you?

A. I did not notice any that were damaged.

Q. 67. You saw that extra fine field of oats?

A. I saw some oats, yes.

Q. 68. Were they extra good?

A. Very good.

Q. 69. How many acres were there in that field?

A. Not a very large acreage, I suppose a couple of acres in each piece.

Q. 70. You stated I believe you were on part of Mr. Shippen's and, didn't you?

A. Yes.

Q. 71. What part were you on?

A. I do not know as I can call the lot numbers, I said I went up both prongs of Flat Creek, from the mouth to the head.

Q. 72. If you cannot remember enough about the lot numbers, how do you know you were on Mr. Shippen's land?

A. I go by adjoining land owners, I have been up in that country a great many times, I was only instructed to go up the Flat Creek Country, which I did, I went up both streams from the mouth to the head, past several mill *sets,* where the timber had been cut at one time, or they had had it done.

Q. 73. You do not know, of your own knowledge then, anything about Mr. Shippen's land, do you?

A. Well, yes, I know it is Mr. Shippen's land.

1232 Q. 74. You live in Mineral Bluff, I believe do you not?

A. Yes.

Q. 75. You testified in Chattanooga the other day about having seen or smelt smoke in your neighborhood this year?

A. Having seen it where?

Q. 76. Over around where you live in the Mineral Bluff section?

A. I do not know exactly.

Q. 77. I do not remember either, that is the reason I am asking you, if you smelt or saw any signs of smoke in there?

A. Well, of course a few times I have.

Q. 78. I will ask you what days?

A. I cannot remember that.

Q. 79. About how many times have you seen and smelt it this year?

A. I cannot tell you that.

Q. 80. How many times did you see and smell it last year?

A. I could not tell you that.

Further deponent saith not.

Sworn to before me this 20th day of June, 1914.

—— ——,
Clerk and Master.

The distance travelled by this witness from his home to place of giving his deposition and return was 252 miles.

1233 J. H. QUINTRELL, being recalled, upon further examination, deposed:

Redirect examination.

By J. A. FOWLER, Esq.:

Q. 1. Mr. Quintrell, state whether or not after your examination in Chattanooga you were requested to make a special investigation of a certain locality in the country by the D. S. C. & I. Company?

A. Yes, sir, I was.

Q. 2. Who was it that made that request of you?

A. Mr. Hyatt.

Q. 3. Gordon Hyatt, one of the counsel for the Ducktown Company?

A. Yes, sir.

Q. 4. Please state what you did in consequence of that request?

A. Well we went in there last Sunday and we found several dead trees and we went on, those trees looked like they might have been dead for ten years, they were white pine and chestnut. I do not think that I saw a dead oak.

Q. 5. State where you went?

A. Well, we went to Flat Creek, we went from the mouth of it to the head of it.

Q. 6. Who were with you?

A. Mr. Baugh and the two Mr. Dickeys.

Q. 7. Did you call for them as you went?

Q. Yes, sir.

Q. 8. Who furnished the automobile?

A. The D. S. C. & I. Company.

Q. 9. Were you in company with Mr. Baugh?

A. Yes, sir.

Q. 10. Did you go to the head of the river with Mr. Baugh?

A. We went plumb to the head of it, and drank water out of a spring that went up to make up the little creek.

1234 Q. 11. As you went along up Flat Creek, did you give careful attention to the foliage?

A. Yes, sir, we did, I was just as careful as I possibly could be, for to give a statement on.

Q. 12. Did you do the same as you came back?

A. I did, as we come back we went up the other prong I would say, going into it, it would be the right hand prong of the creek.

Q. 13. Describe fully what the condition of the forest was?

A. Well, sir, it was as pretty as I ever saw in my life. Of course I did not get down and see what every tree was, but it looks to me that it is nearly one half of the timber that is in there, is chestnut timber, and against the sides of the mountain, and it is all in bloom and it is fine, so we went on up the creek to the head, above where the saw-mills had been, right at the head of the creek. It does not seem as though there has ever been any timber cut up there, and it is as pretty a forest as I ever put my foot in.

Q. 14. Did you see any dead trees that appeared to have di recently?

A. No, sir, I did not.

Q. 15. Did you on this trip see any evidences whatever of any moke damage during the present year?

A. I did not, not after I left a mile, I guess, this side of Copperhill, I saw smoke signs about a mile this side of Copperhill.

Q. 16. What do you mean by this side?

A. Not this side but going toward Mineral Bluff.

Q. 17. Was that in Georgia?

A. Yes, sir, in Georgia.

Q. 18. How far over the State line?

A. Well, it was only a mile over the State line.

1235 Q. 19. What was the extent of the damage you are speaking of?

A. Just the ends of the leaves were crisped up, you could see just as though there had been a light frost on the timber.

Q. 20. And how big a territory did that extend over?

A. Did *did* not last over a quarter of a mile, not more than that, rom where I first noticed going in toward Georgia from Mineral Bluff.

Q. 21. Had that been recent or not?

A. Yes, it had not been more than a week or so, since it had been done.

Q. 22. I believe when you were on the witness stand before you estified about seeing smoke emitted one day?

A. Yes, sir.

Q. 22. From the Tennessee stack?

A. Yes, sir.

Q. 23. Was that smoke going in the direction of where you found this damage?

A. No, this smoke was later, where I was the other day was leading up the river above where I saw it before, it was about a mile orter up the river from where I saw it before.

Q. 24. State whether or not the appearance of these leaves indicated it was recent smoke damage, since that time.

A. Yes, it showed as though it might have been created along about the same time.

Mr. Hill: We except to that as a conclusion of the witness without having qualified as an expert on smoke damage.

Exception overruled and appeal taken.

Q. 25. I believe you have stated before how long you have lived n that neighborhood.

A. Yes, sir.

Q. 26. Were you raised there?

1236 A. I was born and raised in that neighborhood, I was carried into Georgia out of Ducktown at the age of twelve ear- old, and stayed there until Ducktown closed down, and I left hat part of the country then and twenty-three years ago this May I ome back.

Q. 27. Did you live there during all that period when so much moke damage was done by the sulphur fumes?

A. Yes, sir, I did.

Q. 28. Now, Mr. Quintrell, were you on Flat Creek during last year?

A. No, sir, it was the first time I was there in my life last Sunday.

Q. 29. Did you notice the crops on the trip you made Sunday?

A. Yes, sir.

Q. 30. What was the condition of the crops?

A. They looked well.

Q. 31. Did they give any evidence of injury from smoke?

A. No, sir.

Q. 32. Did you see any oats growing?

A. Yes, sir.

Q. 33. What was their condition?

A. They were good, looked like fine oats. I did not see any trace of rust or anything on the oats.

Q. 34. Do you know whether oats are easily affected by smoke?

A. Yes, they are. I had about ten acres killed one time by the smoke.

Recross-examination.

By J. A. **Drake**, Esq.:

Q. 35. I will ask you if that is not the reason you do not find many oat patches in that country, because the smoke kills them s bad?

1237 A. Yes, sir it has been there in our country, up until the last two or three years, you could not raise oats. Last year I taken it on myself—I live at Epworth—own land there, I sowed a half acre last year in oats, and to see what it would do, and I am satisfied up until June first when I left home, in June, that the smoke was over on them oats from an average of five days a week, because we had a north-west breeze all last summer, and it carried the smoke directly from the Tennessee Copper Company's plant right over o to Epworth, where I live, and I walked down many times every day up until that time, to see whether it was taking any effect on it and I could see no effect of it at all. Well, I left the first day o June and taken a trip in North Carolina, and before I got back the oats matured and my wife had them cut, and last fall when these companies and the Georgia men had their men in there inspecting the damage, why I invited them to go into my field and look at my oats, and told them that I had raised oats, and they matured so they taken my word for it and did not come.

Q. 36. How far is that oat patch from Mine No. 20?

A. Mine No. 20, it is only two miles.

Q. 37. You are the same Mr. Quintrell that has filed a lot of photographs as exhibits one to five, are you not?

A. Yes, sir.

Q. 38. And took those pictures at your own expense and on yo own initiative?

A. Yes, sir.

Q. 39. And filed them here to show that that smoke has not done any damage in fourteen years?

A. No, sir, I did not do that.

Q. 40. Did not one picture show that?

1238 A. I did not think so, I do not say but what the timber shown on that photograph has been injured by the smoke, I did not say that at all.

Q. 41. Which picture is that?

A. That is number one, I did not say that it has not been injured, I just say how long it has been since that field was turned out.

Q. 42. Who did you see on this Sunday trip?

A. On this Sunday trip.

Q. 43. And talk with?

A. I saw a man by the name of Davenport that lived there.

Q. 44. Please, each time give the full name if you know, Henry or John?

A. Well, his name was Columbus Davenport, he lives right on this side of the mountain this side from Flat Creek, what they call Snakenation.

Q. 45. Who else did you see?

A. That is the only man that I saw. I saw Mr. Henry Davenport that lives on the first place we come to, I saw his boy and asked about his father and he said that his father was at Ducktown.

Q. 46. Then you did not talk with but one man, or did you talk with Columbus Davenport?

A. Yes, we talked with Columbus, as we come back, talked to him.

Q. 47. Is he the only one, the one that had the fine apples?

A. Yes, sir, he had a fine apple orchard.

Q. 48. Does anybody live up in that country?

A. It looked to me like right at the mouth of Flat Creek, there are two or three families, looked like, but that is all I saw with the exception of Henry Davenport on Flat Creek.

Q. 49. Whose houses, I am talking about, did you see any evidences of people living there?

1239 A. No, sir, nothing on Flat Creek, just one family or two.

Q. 50. Just one family up there?

A. There is another family below, Mr. Davenport, Mr. Henry Davenport is further up on the creek, I could not see the apple trees at first that I saw, and some of the boys with me drawed my attention to them bending with apples. We crossed the mountain from Flat Creek over in what is known in our country as Snake Nation.

Q. 51. Across the mountain?

A. Across from Flat Creek, yes, sir.

Q. 52. I believe you stated in your original examination at Chattanooga the other day that the building of these tall stacks and changing from the old roast heep methods had a tendency to bro-den the area of this damage?

A. It did when they went to smelting the ore green, the year the Company smelted the ore green there was some damage done in our country, that is in Georgia, the year they were smelting green then it carried it a distance away from the mines.

Q. 53. What year was that, I do not remember?

A. I would not be positive, but I think it was along about 1904 or 1905.

Q. 54. And does not these stacks that are there now, send th smoke out into the upper currents of the air, and does it not com out of these flues in a solid and compact form and go off into th air in one continuous volume?

A. You must understand that as we go along, we only have on high stack in our country.

Q. 55. Please answer my question, and then make your argumen later.

A. Of course it is more confined, it is more confined in a smelter into a smaller body and it goes in a smaller place in the stack.

Q. 56. Don't you know that the Ducktown Company has got stack that is Seventy feet high?

1240 A. No, sir, the——

Q. 57. Is not the Ducktown Sulphur, Copper and Ir Company's stack seventy feet high?

A. I never have measured their stack, but if I give my gues judgment, I looked at the stack a week ago, and we have a stack a our mine No. 20, that is fifty feet high, and I would not judge taking the looks of it, not measuring the stack or nothing, I woul not take the D. S. C. & I. Company's stack to be as high as our stac at No. 20.

Q. 58. If Mr. Laramoreux, the assistant Manager would swear was seventy feet high, you would believe it?

A. I would take it, I never measured it.

Q. 59. And is not that seventy foot stack on a much highe ground than the Tennessee Company's stack?

A. No, sir, it is not.

Q. 60. And does not the smoke from the top of that stack com out almost at the same altitude as the Tennessee Company's?

A. I will tell you what I can do, my friend, I have looked at time after time, I can stand at our mine, No. 20, and can look ove the top of the Te-ssee Copper Company's stack, but I cannot see an stack at the D. — C. I. Company's plant. You can come there an look and you cannot see any stack at the D. — C. I. Company fro there either.

Mr. **Drake**: Read the question.

(Question was then read.)

A. Of course I never put the level on it, I would not begin to sa about that, because the Tennessee Company——

Mr. **Drake** (interrupting): That answers the question.

A. (Continuing:) I would not begin to say, because I never p the level on the two.

Mr. **Drake**: I except — the former answer as not being responsi and being argumentative.

Q. 61. Whose land did you visit last Sunday?

1241 A. Mr. Shippen's.

Q. 62. His especially?

A. Well, we visited his, that is what we went in there to look at, Mr. Shippen's property.

Q. 63. You went especially to look at his land?

A. I know just where the parties that are in there showed me, Mr. Shippen's land, and where Mr. Shippen had his saw-mill, cutting out the lumber.

Q. 64. You do not know of your own knowledge anything about it?

A. No. I could not swear positively that it was Mr. Shippen's land.

Q. 65. You do not know where they are located?

A. I know that is where they said it was.

Q. 66. Who?

A. Mr. Davenport's son, they own property adjoining Mr. Shippen's property, Henry Davenport.

Q. 67. You do not know a single lot number of his?

A. No, I do not.

Q. 68. You stated that the forest up there is extra fine?

A. Yes, sir, it is nice.

Q. 69. And the best that you ever put your foot in?

A. In the upper end of it, the upper end of it, as pretty, I say, as I ever saw.

Q. 70. Is that property not up close to where the saw-mill used to be?

A. No, it is above where it had been. They did not saw up where I was, the upper end of the creek looked as though there had never been any timber cut out of it, and the growth of the timber was high poplar and chestnut.

Q. 71. Mr. Shippen did have a mill up there at some previous time, didn't he?

A. I could not see where, but I could not say whether he did or not. I seen the signs of mills, lower down.

Q. 72. You saw old mill sets?

1242 A. I saw where there had been three sets up on Flat Creek, on one prong, and I noticed two sets, one or two, I would not be positive on the other prong.

Q. 73. How do you explain the fact that these saw mills did not kill all the timber out in that country if they are so bad on timber, you are talking about?

A. They did not kill it out.

Q. 74. Why is it that the saw mills did not cause the worms to come in there and eat out the timber?

A. Well, all the timber that I saw up there, or that is right around where Mr. Shippen's mills stood was dead.

Q. 75. Yes, there was a lot of dead timber.

A. Yes, sir, I say there is some dead timber.

Q. 76. And it was not so fine in that neighborhood?

A. Yes, it was fine, only right close where the saw mill sets were, there is some white pine and some chestnuts that is dead, quite a number of them.

Q. 77. Well, did you see Prof. Bain when he come down there making some photographs?

A. I never saw him, no, sir.

Q. 78. You do not know then about the color photographs?

A. I did not know a thing about them, I was not at home the day they passed through there.

Further deponent saith not.

—— ——.

Sworn to before me this 19th day of June, 1914.

—— ——,
Clerk and Master.

The distance traveled by this witness from his home to the place of the taking of his deposition at Knoxville was 228 miles, for the round trip.

1243 H. P. Davenport, the next witness called, being first duly sworn, was examined and deposed as follows:

Direct examination.

By J. A. Fowler, Esq.:

Q.*1. Where do you live, Mr. Davenport?

A. I live in Fannin County, Georgia.

Q. 2. Whereabouts in Fannin County, do you live?

A. I live in about six miles south of Blue Ridge.

Q. 3. On what creek?

A. On what is known by the name of Flat Creek.

Q. 4. How far from the mouth of Flat Creek do you live?

A. I live right down close, three quarters of a mile I suppose.

Q. 5. How long have you lived there?

A. I have been living there about seven years.

Q. 6. Do you own a farm there?

A. Yes, sir.

Q. 7. How large a farm?

A. 160 acres.

Q. 8. Have you a crop on that farm this year?

A. Yes, sir.

Q. 9. What are you growing?

A. I am growing corn, potatoes, cabbage, beans, watermelons, potatoes, and vegetables of that kind, you know, garden stuff.

Q. 10. Any fruits?

A. My orchard that I have got, on my apples, they are very young, and a few have scattering apples.

Q. 11. What is the condition of your crop this year?

A. My corn this year, some how or another is a little small, the crop of corn, all of it I noticed. There is no corn that I noticed that seems to be so large on account of the dry weather.

1244 Q. 12. Have you had a pretty dry spring through there?

A. Yes, sir, very dry.

Q. 13. Have you noticed any evidence of any smoke damage to that crop this year?

A. Nothing only on late potato patch, I planted, I was over in it—I have been working at Copperhill myself, as a carpenter at McCays, and I have not been with the Company. I have not been at home this spring very often, now and then I would go in home and walk over into it, my Irish potato patch, and see some of the leaves of the tops that were kinder killed, is all that I have noticed.

Q. 14. When was that?

A. That has been about two weeks ago, two or three somewheres right along there.

Q. 15. Could you say for certain if it was done by smoke or something else?

A. No, sir, I could not say what done it.

Q. 16. State whether or not dry weather has some effect on Irish potatoes where they are near maturity?

A. Yes, sir, I think so. I think it would.

Mr. Drake: I except to that as being a conclusion of the witness. Exception overruled and appeal taken.

Q. 17. Mr. Davenport, were you with some gentlemen that went up Flat Creek last Sunday?

A. Well, they said they were there. I was not at home, you know.

Q. 18. You did not go with them?

A. No, sir; I was not at home.

Q. 19. Have you noticed the forests around in your section during the present year?

A. You mean this year?

Q. 20. Yes.

1245 A. When I was at home, I did notice it, yes, went right down through it, and there is not much cleared land in my place, as pretty near all the cleared land there is is right on that creek.

Q. 21. What is the condition of the foliage on the forest this year?

A. The young forest in there?

Q. 22. Yes?

A. The young forest in there so far as I know looks all right, so far.

Q. 23. Have you noticed any evidence of smoke damage right there, on any of the trees?

A. No, sir, not this year, I have not.

Q. 24. There are a good many chestnut trees through there?

A. Yes, sir, a good many.

Q. 25. How are they looking?

A. Well, they were looking, the chestnut timber there, were looking all right, blooming out the last time I was at home, and looked very well. The chestnut timber did, all looked well, really it looked better to me, the timber does in there for this year, and 1913, than it did back of that, the timber does.

Q. 26. I wish you would state what the condition of the timber was last year through your section?

A. Last year, well, I think the condition of the timber through there last year, that is last year, I think it was in good condition.

Q. 27. Do you know of any damage from smoke in that section during the year 1913?

A. Do you mean right where I live?

Q. 28. Anywhere in the Flat Creek section in there?

A. That is a little creek in there where I live.

1246 Q. 29. I am speaking about that section over on Flat Creek?

A. Well, no, I did not notice any that is, if you will let me explain that.

Mr. FOWLER: Go ahead.

A. (Continuing:) You see where this smoke settles down, my experience is, where it settles down or falls, it browns the leaves, it will turn the leaves all brown on the timber for a right smart spot you see.

Q. 30. How large a spot?

A. I could not tell, it might go on over a half mile or a mile further, and you would not see the appearance of it, that is the effect of it. That is about the way I have seen it, Judge.

Q. 31. How was it there in 1906 and 1907, and along in there?

A. Let me get my mind back there, as near as I can, I could not tell you because I have not been taking any note of this, if I had been taking a note of it, of course I would know, but I have not. I have not been taking note, and I have not been looking around about the smoke and timber, I am a carpenter and the most of my time I am employed away from home.

Q. 32. Tell us back a few years, how the timber looked through there?

A. The timber was considerably burnt a few years back.

Q. 33. Was there any of it killed?

A. I cannot tell you about that.

Q. 34. You have described how that smoke does?

A. The leaves have been killed, I can say that, but the body of the tree, I could not tell you about that.

Q. 35. Mr. Davenport, I say you have described the effect of that smoke on patches of timber?

A. Yes, sir.

Q. 36. When was it you noticed that effect on the timber?

A. My recollection is when I paid the most attention to the smoke on the timber through that section there of country was about nineteen ten or eleven, some where I could not say positively, but then, it seems to me about that time was the most that I discovered through the country where I live. 1247

Q. 37. Did you notice any such effect on the timber, or spots of timber last year,—I mean 1913?

A. No, sir, No, I have no recollection of it.

Q. 38. What was the condition of the chestnut crop and the *past* in general through there last year.

A. We had a right good mast, had a good mast of chestnut and acorns, that is considering, I would like to explain right there. Now, I am not considering we had a good mast, but now, mind you there has been a sight of that timber all over that section of the country that has been so milled out you cannot expect the mast to do as good as where it is that way as where it is not.

Q. 39. As where there is more timber?

A. Yes.

Q. 40. Did the hogs fatten in the woods last year?

A. Yes, sir, the hogs got in good shape up around me and above that in the mountains.

Q. 41. Can you say whether or not you noticed any evidences of smoke fumes year before last through there, 1912?

A. On some bushes when I went home, I do not know whether it was smoke or what it was, that is something I am not going to be positive about, because it was something I do not know about, I noticed a few bushes down there brown right where I live. It is woods right close to my house. I said to my wife, "do you reckon that is Ducktown smoke, that has browned them," she said she did not know, and I did not know either.

Q. 42. That was in the year 1912?

A. Yes, sir.

Q. 43. Was that the only apparent damage that you could attribute to smoke during that year, that you saw during that year?

A. Well, I will tell you men how I am—are you getting me——

1248 Q. 44. I am talking about that Flat Creek section.

A. The vegetables like I told you, sometimes I could see that the smoke had affected the vegetables.

Q. 45. That was in 1912?

A. Yes, that year I recall why I saw that now, was that one of the Ledfords went through my crop looking over my place.

Q. 46. You did raise a garden?

A. Yes, sir.

Q. 47. Did you have a good garden?

A. I had the best garden, said to be, there was in the whole country.

Q. 48. Did you, what did you raise that year?

A. Beans, potatoes, beets, cabbage, everything that grows in the garden. I do that every year.

Q. 49. You have done that every year in there?

A. Yes, I have done it every year.

Cross-examination.

By J. A. DRAKE, Esq.:

Q. 50. As I understand you, Mr. Davenport, you are a carpenter, and are away from home the biggest part of the time through the summer, are you not?

A. Yes, I go backwards and forward, may be off a month, some times, may be two weeks, may be three weeks and then in home and stay all night and a day or two days, and then back to work.

Q. 51. Where you work at McCay, Tennessee, or Georgia, is just across the river from Copperhill, is it not?

A. Yes, sir.

Q. 52. Practically the same town, only the river intervenes?

A. Yes, sir, that is it.

1249 Q. 53. And in your work as a carpenter that does not cause you to go into the woods and fields and gardens as much as if you were a farmer?

A. That is what I said. I said I did not visit them like a man that would be farming.

Q. 54. And for that reason you are not up in this smoke business?

A. No, sir, I really am not up on it. Like men that went and looked for it.

Q. 55. You do know that your potatoes were bit with something about two weeks ago, that you spoke about?

A. Yes, sir, the leaves on them were dead, I do not know what it was, I could not say that you know.

Q. 56. Don't you know, Mr. Davenport, that the effects of the drouth, affects the whole plant from the bottom to the top, and do not come along and parch the leaves right on top.

A. That is what I testified to that it did.

Q. 57. And is it not a fact, however, that if a leaf was parched right on top, like frost for instance, would you say that was the drouth affecting it or something else?

A. I would not know, I would think it was something else, if the plant was affected from the ground up from the drouth, I do not know about these things.

Q. 58. Do you know enough about this smoke effect on vegetation to say whether the effects are very much like frost?

A. Well, sir, from the appearance of the leaves it looks like it might be.

Q. 59. I believe you stated a while ago in a little different form, and is it not a fact, that certain sections of trees on a mountain side, or a hill side would be worse affected from the smoke than others?

A. Yes, sir.

Q. 60. Have you smelled any smoke down there this year, when at home?

1250 A. When I was at home, yes.

Q. 61. How far away from Ducktown or Copperhill is it?

A. I think it was that, I smelled it, it smelled like the smoke down here.

Q. 62. You know how that sulphur smoke smells?

A. Yes.

Q. 63. You have smelled smoke that was similar to it?

A. Oh, yes.

Q. 64. How far is it away from Ducktown and Copperhill, your home?

A. You mean an air course?

Q. 65. Yes, by the road and then estimate it by an air course?

A. It is about eighteen miles around the road, I think, may be it is more than that, let's hold on, I want to be as near right as I can. I do not know whether it is counted sixteen miles to Blue Ridge, or not, if I knew what it was counted to Copperhill or Blue Ridge, I——

Q. 66. Well, you will have to estimate it.

A. I believe it is sixteen—it is eighteen or nineteen miles

Q. 67. That is by road?

A. Yes, sir, nineteen miles by road.

Q. 68. How far do you judge it to be by an air course?

A. I would think about twelve or thirteen miles.

Q. 69. If that smoke that you smelled come from Copperhill to Ducktown, which way would it come with respect to Blue Ridge?

A. It would go to the south of Blue Ridge some to get in on me, I do not know exactly how far, but it would have to go to the south some of Blue Ridge, if it come direct across you mean?

Q. 70. I believe you stated you lived directly south of Blue Ridge in your examination?

A. Yes, sir.

Q. 71. Then the smoke coming to you would come some distance south of Blue Ridge to reach you?

1251 A. Yes, sir.

Q. 72. About how far would you judge by an air course do you live from Blue Ridge?

A. Well, let's get it down, it would miss Blue Ridge about some three miles, I guess, two or three, somewhere along there I could not tell you hardly, I do not know.

Redirect examination.

By J. A. Fowler, Esq.:

Q. 73. Mr. Davenport, when were you last over at home?

A. I was at home last Tuesday was a week ago.

Q. 74. Was that when you noticed the apparent effect of sulphur fumes on the Irish potatoes?

A. I do not know whether it was that or not, I would not say it was the effect of it.

Q. 75. Was that the date you noticed it

A. Yes, that was the time I noticed it, I had trouble with my potato patch.

Further deponent saith not.

Sworn to before me this 22nd day of June, 1914.

—— ——,

Deputy Clerk U. S. District Court.

The distance travelled by this witness from his home to the place of giving his deposition, and return was a total of 228 miles.

1252 G. P. Dickey, being recalled, upon further examination deposed as follows:

Redirect examination.

By J. A. Fowler, Esq.:

Q. 1. Mr. Dickey, since you gave your testimony at Chattanooga, state whether or not you have made a trip up Flat Creek?

A. Yes, sir, I made a trip up Flat Creek.

Q. 2. When did you do that?

A. Last Sunday evening.

Q. 3. At whose instance?

A. Col. Hyatt, I think is the one that spoke to me about that.

Q. 4. How did you go over there?

A. We went over in an automobile.

Q. 5. Who furnished the automobile?

A. Mr. Quintrell had it engaged, I reckon he was in charge, he seemed to be in charge of it.

Q. 6. How far did you go up Flat Creek?

A. We went up, I could not say exactly how far we went. We got out of the automobile where Mr. Davenport lives there, and walked something like two or three miles, and the other parties went further, some went further than I did I turned and went back on the mountain.

Q. 7. Did you make a careful examination of the forest as you went up?

A. Yes, sir.

Q. 8. You noticed the crops and vegetation?

A. Well, after we left the Davenports we did not see any one living there, but before we got there the crops were in good condition.

Q. 9. Did you also examine the forest, give special attention as you went along and came back to the forest?

A. Yes, sir.

Q. 10. What condition did you find the foliage of the forest in?

1253 A. It was fine, as nice a foliage as I ever saw, we saw some dead trees up there.

Q. 11. How long had they been dead, or appeared to have been dead?

A. A good long while.

Q. 12. Most of those trees of what kind?

A. Most of them were old chestnut trees, we see a right smart of dead timber.

Q. 13. Did you notice any numbers that appeared to have died last year?

A. No, sir, I saw one tree that had been struck by lightning, it was torn all to pieces.

Q. 14. Did you see any evidences at all of any smoke damages in that section?

A. I did not. Then, after we left there we came across the mountain, went down in what is known as Snake Nation country, and the crops were mighty fine on the south side of the mountains, we saw some nice orchards, and gardens and the rye crop seemed to be splendid.

Q. 15. Did you notice the foliage of the crops all through the Snake Nation country?

A. Yes, sir.

Q. 16. What was the condition?

A. I did not see any signs of smoke on them.

Q. 17. Did you on the trip see any signs of smoke damage?

A. I did not.

Q. 18. Do you know whether or not you were on Mr. Shippen's land?

A. Well, I was told that I was, a cousin of mine had sold a lot up there further, adjoining that, and he told me they had run the line, and the people there told me that was Shippen's land.

Q. 19. Were there places where saw mills had been set there?

A. Yes, sir.

1254 Q. 20. Do you know whether or not Mr. Shippen ran sawmills over in that section?

A. Only what I have heard, and heard people telling that away back years ago, they told me that they were hauling up there.

Mr. Drake: I except to all the witness' answers as to what he heard other people say, as hearsay.

Exception overruled and appeal taken.

Q. 21. Have you any idea of how much of the land owned by Mr. Shippen you were over?

A. Well, I could not tell exactly how much, I went something like three miles, I reckon, some of the other boys went further than I did.

Mr. Drake: We except to the answer, as being a conclusion of the witness, not having stated that he knew the boundaries of Mr. Shippen's land.

Exception overruled and appeal taken.

Q. 22. What was the condition of the timber on those lands which you understood belonged to Mr. Shippen?

A. They were in good condition.

Q. 23. Did you notice any evidence of smoke damage in *a* that land?

A. No, not a bit. I noticed some very nice locusts there, tall locusts, and they tell me that it is bad on them, and I noticed them particularly.

Q. 24. Is there a great deal of chestnut growth there?

A. A lot of it.

Q. 25. What is the condition of the chestnut?

A. I never saw as many blooms in my life in any one year, as there is this year.

1255 Q. 26. Do you know whether or not the chestnut timber is easily affected by sulphur fumes?

A. Yes, sir, it is.

Q. 27. Do you know whether or not it is a fact that chestnut timber in other sections of the country far away from these furnaces is dying?

A. Well, I have not been out this year very far, to see about that no more than what I have heard.

Q. 28. Do you know anything about that section last year, were you through there?

A. I was not in that section last year.

Q. 29. Were you through there before, year before last?

A. No, I have not been in that section since 1910.

Q. 30. Do you know whether any damage was being done in there in 1910, or did you notice enough to tell?

A. I do not know as I noticed particularly right in that immediate section. I was not up on his land, I was right there in that neighborhood, all through it.

Cross-examination.

By J. A. Drake, Esq.:

Q. 31. Well, whose places did you visit, first though, who did you talk to on this trip, Mr. Dickey?

A. We talked to Mr. Davenport up there.

Q. 32. He is the one that is here today?

A. No, sir, he is not the one I did not see him.

Q. 33. Anybody else?

A. Mr. Willis that lives up there.

Q. 34. You talked with him?

A. Yes, sir.

Q. 35. What is his name?

A. I do not know what his given name is, he is a son of that Willis that runs the store, we always call him, Pet, J. M. I believe, I am not certain, is the way he signs his name.

1256 Q. 36. What is the son's name?

A. I do not know.

Q. 37. Who else did you see up there on that trip?

A. I saw several fellows, I did not talk with, met several fellows in the road.

Q. 38. Did you tell them you were up there hunting smoke damage?

A. I told Mr. Willis I was.

Q. 39. Did you not tell these other fellows you met in the road?

A. No, I did not talk with them.

Q. 40. Did not you know those fellows you met in the road?

A. I do not know. I did not pay any attention, that fellow Davenport, I stopped and talked to him a while.

Q. 41. What part of Fannin County is Mineral Bluff in?

A. In the northern part.

Q. 42. Is it not a little more northwest?

A. Well, I think it is a little.

Q. 43. How far is it from Copperhill?

A. Mineral Bluff?

Q. 44. Yes?
A. We call it nine miles.
Q. 45. How far is it from this Flat Creek Country you went and visited on last Sunday?
A. Copperhill?
Q. 46. No, Mineral Bluff?
A. Mineral Bluff, well, I guess it is,—something like eight miles, I guess the way we went.
Q. 47. Mr. Quintrell, I believe got the automobile and got you other gentlemen and carried you down there?
A. He met me at Blue Ridge.
Q. 48. You came across and met him then, and you went all together?
A. He came to Blue Ridge and I got in the automobile there and we went to Flat Creek.
Q. 49. Who first called on you to go?
A. Mr. Hyatt.
1257 Q. 50. In what way?
A. He asked me if I would go.
Q. 51. You mean he saw you in person?
A. Yes, sir, saw me in Chattanooga.
Q. 52. Whose lands did you go on, on that trip?
A. Well, we were on the Lovingood.
Q. 53. Which Lovingood?
A. W. B.
Q. 54. Whose else?
A. Miller, they call him Crusoe.
Q. 55. Whose else?
A. Tarpley, George Tarpley.
Q. 56. Whose else?
A. Well, we went through Will Rogers', it is down on the river, Will Rogers' what is known as the old Chastine farm.
Q. 57. Did any of those fellows with you, or that you have named, point out smoke damage to you?
A. No, sir.
Q. 58. Did they know you were up there hunting smoke damage?
A. I do not know as they did, some one of the crowd told me.
Q. 59. Did you smell any smoke down there that day?
A. No, sir.
Q. 60. You went down there especially to investigate Mr. Shippen's lands, did you not?
A. I do not know that we investigated his lands especially, we investigated the lands on Flat Creek, is what they told me.
Q. 61. You did not go especially to see Mr. Shippen's lands?
A. I do not know, sir.
Q. 62. In fact you do not know whether you were on Mr. Shippen's land, do you?
A. Yes, I know what the other fellows said.
Q. 63. That is all, you do not know of your own knowledge.
A. I should think that we were, from what they all told me, and

what I know of where I had always been told it was Shippen's lands.

1258 Q. 64. Did you see or smell any smoke down there last Sunday?

A. No, sir, I did not.

Q. 65. Did you ask any of these men that you met up with to point out to you some smoke damage?

A. I do not think I did. I suppose that fellow Wallis, did know, I asked him, I said can you show me any, and he said no he did not see any.

Q. 66. He is the only one you asked about the smoke?

A. That is the only one I talked to to amount to anything.

Further this deponent saith not.

Sworn to before me this 20th day of June, A. D. 1914.

——— ———,
Clerk and Master.

The distance travelled by this witness from his home to Knoxville, Tennessee, the point of giving this deposition and return home was a total of 252 miles.

1259 J. C. Addington, the next witness called, being first duly sworn, upon examination deposed as follows:

Direct examination.

By J. A. Fowler, Esq.:

Q. 1. Mr. Addington, where do you live?

A. I live in Fannin County, one mile east of Morgan.

Q. 2. Fanning County, Georgia.

A. Yes sir, Fannin County, Georgia.

Q. 3. How far is that from Copperhill?

A. About thirteen miles.

Q. 4. Thirteen miles air line?

A. No, the way the crow flies, the way we go to Copperhill.

Q. 5. How far do you suppose it is on an air line?

A. I could not tell you, of course it is a good deal nearer.

Q. 6. How long have you lived there, Mr. Addington?

A. I was born and raised there until a few years ago, when I went west and stayed eight and one-half years and then come back there.

Q. 7. Do you remember when you went west?

A. About fourteen years ago, somewhere near fourteen years ago.

Q. 8. In what year did you come back?

A. I come back last April five years ago, the best I remember.

Q. 9. That was in 1909?

A. 1909, I guess.

Q. 10. What have you been doing since you came back?

A. I have been trying to farm a little part of the time.

Q. 11. How long have you been farming?

A. Well, I have been farming from ever since I came back from the West, I was raised on the farm and farmed some in the West and sometimes I have done something else.

Q. 12. Do you own a farm now?

A. A piece of one.

Q. 13. How large is it?

A. Forty acres, more or less.

1260 Q. 14. And when did you buy that farm?

A. I did not buy it, I heired it, give to me.

Q. 15. When did you get the farm?

A. Well, I have been on the farm as mine ever since I have been back from the West, but I do not recall exactly the time I got the deed for it.

Q. 16. How many years have you been cultivating that place?

A. About six years, I believe, I have been back, five and a half, and this will be six years.

Q. 17. When you began to cultivate it, what kind of land was it?

A. It was on the outside, not outside, but thrown out of cultivation and growed up in sassafrass sprouts, blackberries, and such things with just a few little patches and the balance was all growed up, but it would not make anything hardly, just a few good stalks now and then and the balance was cut down to the ground for silage seed.

Q. 18. And about how much corn would it produce to the acre when you first got it?

A. It made so little it is hard to say, I do not believe I made over ten or fifteen bushels, on four or five acres of any good corn.

Q. 19. You began to improve it, did you?

A. Yes, sir.

Q. 20. Cleared the briers and the underbrush and grubs out?

A. S*h*ure, I took the grubs out and a good many of the stumps, and a great deal of the rocks, applied sc*ei*ntific methods of farming, plowed, sub-soiled and rotated as near as I could.

Mr. DRAKE: We except to that class of evidence as being foreign to the issue.

Exception overruled and appeal taken.

Q. 21. How much did you have in corn last year, how many acres?

A. I had four or five acres.

Q. 22. How much corn did you make?

A. I did not measure but the one acre.

Q. 23. That was your best acre?

1261 A. Yes, sir.

Q. 24. How much did you make?

A. Well, I made somewhere, just to guess at it, from, in the neighborhood of three hundred bushels.

Q. 25. How much did you make on that acre that you measured?

A. One hundred and thirty-six bushels, fifty-two pounds.

Q. 26. Was there any premium offered in Georgia last year for the best acre of upland corn?

A. Yes, sir.

Q. 27. Who got the premium?

A. Myself.

Q. 28. Did Fannin County also offer a premium?

A. I do not know whether it was exactly the County or not, ou Blue Ridge Summit, the newspaper put out an award of One Hundred Dollars to be awarded in prizes and I took forty dollars, too the first premium.

Q. 29. You got the first prize?

A. Yes sir.

Q. 30. Did you raise any other crops besides corn last year?

A. I raised potatoes.

Q. 31. You mean Irish potatoes,—white potatoes they call the in the North?

A. Yes sir, Irish potatoes.

Q. 32. How many acres of potatoes did you raise?

A. I did not measure it, anywhere from two to three acres.

Q. 33. How much did you raise to the acre?

A. On that land in potatoes, I ran one hundred eighty-nin bushels to the acre and I followed those potatoes with corn and mad seventy-five bushels of corn to the acre.

Q. 34. You also raised corn and potatoes in the year 1912, di you?

A. Yes sir, though I did not make quite so much trucked in 191 a great deal.

1262 Q. 35. What kind of season did you have last year?

A. Very dry.

Q. 36. Was that a good season for potatoes?

A. Nor sir, potato-s need a great deal of precipitation.

Q. 37. Well, state whether or not the dry weather also injure your corn crop?

A. Yes sir.

Q. 38. Now, was that acre of corn on a hillside?

A. Well, you would call it a hillside I guess, right up alongsid of the mountain, at the head of the branch upland, if we have go any in North Georgia.

Q. 39. How far is that from the branch?

A. There is a little branch that runs along the whole edge of i but it lays from that up on to the hill.

Q. 40. Now, Mr. Addington, state whether or not when you fir began to farm there, that is a short time after you came back fro the West, you noticed the effects of the sulphur smoke in that immediate locality there.

A. Why yes, some little bit, I never studied the smoke busine very much. I heard a great deal of complaint of it.

Q. 41. Did you notice the effect of smoke on the timber, did look like it had been scorched or burnt leaves?

A. Not very much, around in the section, but in certain place

Q. 42. When did you last notice anything that indicated th the leaves of the trees had been burnt by smoke?

A. Yesterday morning.

Q. 43. Where did you notice that?

A. Coming down to Copperhill the Broad road within four miles f Copperhill.

Q. 44. You mean as you were coming here?

A. Yes sir, coming on.

Q. 45. That was in your section of the country?

A. Oh no.

Q. 46. Now, I mean in your section of the country,
263 through Georgia?

A. I never noticed any this year.

Q. 47. Then you say that you noticed any appearance of smoke amage to the leaves of the forest last year?

A. I cannot really say whether I did last year or not. Now I ave noticed it there close to Blue Ridge Georgia. I noticed some, cannot say whether it was the last year or the year before, just oticed it, that is all.

Q. 48. Is that the only place where you noticed it at that time?

A. Well, the only place I remember noticing it, of course, I do ot know.

Q. 49. Could you say for certain that that was year before last?

A. No, I could not say at all when it was positively.

Q. 50. Now, with reference to your crops, Mr. Addington, have ou noticed any damage this year which you could ascribe to the moke fumes?

A. I saw nothing in my crops this year that I could ascribe to he smoke fumes. I saw a little mildew on the wheat shed there emed to be burnt or mildewed, some of the men, in there thought t was the smoke, but I do not know.

Q. 51. Had you or not, this year, any wheat on that acre where ou grew the prize corn?

A. Yes sir.

Q. 52. Now, do you have reference to the wheat that is growing n that acre?

A. Yes sir, and other land there, too, all the wheat I have got is ight there in a little patch.

Q. 53. Have you cut your wheat?

A. Yes sir, cut all the rest of it, I *liked* a little bit of being done esterday.

Q. 54. You have not had it threshed?

A. No sir, I have not.

Q. 55. In your judgment, how much has that land pro-
264 duced to the acre this year?

A. Somewhere in the neighborhood of fifty bushels.

Q. 56. Have you some samples of the wheat present with you?

A. Yes sir, I have.

Q. 57. I will ask you to file that as Exhibit 1 to your deposition.

A. I do so.

Q. 58. Can you see the stacks of the Tennessee Copper Company rom your place?

A. Not from my place, at least, I never have.

Q. 59. Can you from any place in that locality?

A. About three miles from there I can, between Morgan and Mineral Bluff.

Q. 60. Now, Mr. Addington, I show you some pictures which appear on page 13 of a pamphlet, which is styled "1914 Year Book" Published by Morris Fertilizer Co."; state whether or not these are pictures taken from your prize acre of corn.

A. Yes sir, that one is (indicating).

Q. 61. You mean the first and the second?

A. The two top ones, yes sir.

Q. 62. Well, what about the one below?

A. That is of the corn that followed the potatoes that is, th late corn.

Q. 63. Then picture No. 3 is a picture of the corn which wa planted in the land on which you had grown potatoes?

A. Yes sir, planted in every other middle, they were six fee middles and the potatoes were three feet, that growed my corn si foot apart in every other middle.

Q. 64. Did you use any fertilizer sold by this Morris Fertilizer Co.?

A. Yes sir.

Q. 65. Did you write the Morris Fertilizer Co. a letter on the 8th day of August, 1913.

A. I think that is correct.

1265 Mr. Drake: We except to that as immaterial.
Exception overruled and appeal taken.

Q. 66. Is that the letter that appears on page 12 of this pamphlet

A. Is this the letter I wrote, you want to know; yes, I know it i I have seen that book.

Q. 67. I wish you would read the letter.

Mr. Drake: We except to the letter and its contents as immaterial and irrelevant to the issue.

Mr. Fowler (Reading from Morris Fertilizer Year Book for the Year 1914):

Morgantown, Ga., August 8th, 1913.

"Morris Fertilizer Co., Atlanta, Ga.

Gentlemen: "I have used a great deal of fertilizer of differen kinds, and I will say that there is no better made than the Morri brands. I try to farm on scientific principles, as every farmer shoul do. I study plant life and soil conditions, fertilizers and thei effects upon the crops, and among the many kinds of fertilizers have used, I find that the Morris brands are all you claim fo them and then some. I would not hesitate to say that the Morri Fertilizer Co. is perfectly reliable and they are the one great agenc that is helping to revolutionize the farm industry in the South, an after their great name shall die out in the long-forgotten past, thei good works will roll on down through the ages as long as a plow continues to rip up the crust of this earth. It is by the use of a hig grade fertilizer like the Morris goods that we can ever hope to mak our acreage less and our yields more. I used the Morris fertili

extensively and have been over the principal corn belts of
1266 the North and West, and nowhere have I seen better corn
than I have; and if any one is from Missouri and thinks this sounds fishy, they are welcome to investigate. So long live all fertilizers like the Morris brands."

J. C. ADDINGTON."

Q. 68. You were trying to tell the truth there, to these gentlemen?

A. I try to tell it always.

Q. 69. When you sent these pictures to this company, you wrote them a letter, did you?

A. Yes sir.

Q. 70. I show you what purports to be an extract from that letter, on page 12 of the pamphlet referred to; was that included in that letter?

A. Yes, that is what I wrote all that on this page.

Mr. **Drake**: We except to that on the grounds as stated before and the extract about to be read on the ground it is immaterial, irrelevant and incompetent with relation to this issue.

Exception overruled and appeal taken.

Mr. **Fowler** (Reading from Morris Fertilizer Year Book): "I had these pictures taken August 5th, by the best picture man in these mountains, yet they do not give my crop justice, as they do not show the ears as good as they are by a long shot. Pictures No. 1 and 2 show a piece of corn that will make about one hundred and fifty bushels to the acre. If I had got rain enough, it would have made two hundred and may do it any way. No. 1 is the end view and No. 2 is the side view. No. 3 is a picture of a field of late corn where I grew a crop of three hundred bushels of Irish potatoes
1267 to the acre, and if frost don't come too soon, this corn will
probably make one hundred and fifty to two hundred bushels to the acre. I used one ton of your high grade fertilizer to the acre on the potatoes and none at all on the corn. Don't this show that your fertilizer is good and lasting? And just think that two crops in one year on the same land, means more than four hundred dollars to the acre to me."

Q. 71. What you stated in that letter there was correct, was it?

A. Well, as far as I could see then, it was. I wrote that before the crop was gathered, you know.

Q. 72. When did you write that letter?

A. That is dated there, I cannot remember the date, I suppose that is correct.

Q. 72. You wrote that letter on September 12th, I believe.

A. I do not remember, what time it was.

Q. 73. You were there sending these three photographs in before September 12th, were you not, this says, "In sending us three photographs of his crop under date of September 12th, Mr. Addington writes as follows."

A. Yes, that is there.

Q. 74. Does that agree with your recollection?

A. Yes sir.

Q. 75. Does not the average crop of corn mature by September 12th?

A. Not in our country, we have too much altitude.

Q. 75. About when do they mature, then?

A. Along in October. I have gathered it between the 1st and 18th of October, I did send some to the State Fair and to make out a report, but it was barely ripe, to cut it at that time, but you can by the 20th of October.

Q. 76. But, it has quit growing by September 12th, and hardens after that?

1268 A. I could not say. It has not yet matured until it has hardened and gets in the state where you can gather and store it, dry in other words.

Q. 77. What time do you pull fodder in North Georgia?

A. When it is ripe.

Q. 78. When is it ripe?

A. Well, a whole lot depends upon that, some ripens early, the early corn ripens earlier, and some later. Late corn, I never pull fodder off of late corn, I cut it and shock it.

Q. 79. When you pull the fodder off of corn, it is supposed to have quit growing, is not that true?

A. If it is not very well cured, you will lose in weight of the corn more than you make in fodder. Of course, stripping all the stalks of fodder, will stop the growing of corn anyway.

Q. 80. *If* not fodder pulled through there by the last of August?

A. I do not try to keep up with those things. I do not know. I pull fodder when it gets ripe. I do not know when that is, though they usually commence in September sometimes. A great many pull it before it is ripe, and ready to pull. I do not think it is ready until the corn is thoroughly matured.

Q. 81. I believe you say you have noticed no damage this year to your crops?

A. I have not been looking for it, and have not seen any, that I can say really.

Q. 82. Did you file a claim with the arbitrators for damages to your crop last year?

A. Yes, in 1913 I did.

Q. 83. How much did you get?

A. I got the great amount of Fifteen Dollars.

Q. 84. Was that what they paid you?

A. Yes, I did not get that. I got part of it and the attorney got the other part.

1269 Q. 85. Was that for damage to your corn and potato crop?

A. Well, that is what they said it was for.

Cross-examination.

By LEON HILL, Esq.:

Q. 86. Mr. Addington, you regard your farming as more of a profession than business, in other words, you use the best methods of farming?

A. The best I know how.

Q. 87. You have studied it, made a life study, a life work of it?

A. No.

Q. 88. You have not, you have been farming all your life?

A. No, sir, I was born with a genius and inclination of a farmer, but I have never studied it all my life.

Q. 89. What I mean, you have devoted your time and talents to developing the land and improving it to raise the best crop you can?

A. I do.

Q. 90. You study the best methods of production?

A. Yes, sir.

Q. 91. And the best fertilizers?

A. Yes sir.

Q. 92. The best methods of plowing and turning the land?

A. The best methods I can get in that way.

Q. 93. The best methods of alternating the crops?

A. Yes sir.

Q. 94. And also the best methods of fertilization?

A. Yes sir.

Q. 95. And the best tools to work it with?

A. I have.

Q. 96. Your neighbors, Mr. Addington, the other people right there in the same country, do not develop the land to the same degree that you do, do they?

A. No sir.

1270 Q. 97. In other words, there is no person in that country that devotes as much thought as you do to farming.

A. There is not ninety per cent. of the farmers that stop and think. When they do stop, they do not think, farming in my country, the most part of the country, is done exactly contrary to plant life and soil conditions.

Q. 98. In the mountains then in Fannin County and in North Georgia, you say that the farmers, the vast majority of them operate their land contrary to the plant life?

A. Yes sir, I know they do.

Q. 99. Now, Mr. Addington, where did most of the upland corn that was in competition with your prize corn at the Fair, come from?

A. I do not know, it was a state-wide competition.

Q. 100. All over Georgia?

A. From Georgia to Florida, North Carolina to Alabama.

Q. 101. And most uplands in Georgia are in North Georgia, in the section around you?

A. Well, there is upland down in middle Georgia, some upland, any land that is not bottom land is upland.

Q. 102. They raise more cotton than corn down there?

A. Yes sir.

Q. 103. And you do not raise any cotton?

A. One of my competitors, I have forgotten, I made special note of it, made one hundred and twenty bushels of corn on upland.

Q. 104. How much corn per acre did the man who took the second prize make?

A. I do not know.

Q. 105. About how many bushels?

A. I noticed in the paper.

Q. 106. Was your crop about like his or better than his?

A. Mine was better, I would not have gotten the prize.

1271 Q. 107. Was it much better, or how?

A. I do not know, but I know this, that the man made 121 bushels, somewhere near that.

Q. 108. And you made 137 bushels?

A. One hundred thirty-six bushels, fifty-two pounds.

Q. 109. Do you know how much corn was made per acre, by any of your neighbors, who had the best corn, next to you, per acre?

A. I do not know.

Q. 110. Do you know who took the second prize in the Fannin County Fair?

A. A man by the name of Cochran, on Sugar Creek.

Q. 111. Where is Sugar Creek?

A. Near Blue Ridge.

Q. 112. And how much did he make per acre?

A. He made, the best I remember, somewheres near seventy bushels.

Q. 113. And yours was nearly twice as much as the next man to you?

A. I remember running it through my mind, I think I was 58 bushels ahead of the nearest competitor in the country.

Q. 114. That was on one acre that you raised 136 bushels of corn?

A. Yes sir.

Q. 115. On the other two acres, I believe, you said you raised about 75 bushels.

A. Seventy-five.

Q. 116. That was on the first planting, last year and after you had grown two corn crops.

A. Where I raised the 75 bushels was where I had planted potato-s, that was late corn.

Q. 117. Yes, after raising potatoes you put corn on the same land?

A. No sir, I planted the potatoes and then I planted the corn afterwards in every other row of potato-s.

1272 Q. 118. You planted your prize corn first?

A. Yes sir, I planted it May 21st.

Q. 119. Then you followed right after that on the other two acres of potatoes?

A. Yes sir.

Q. 120. Then, after the potato-s you planted two acres of corn after that.

A. Yes, but I did not take the potato-s out, I put the corn in just the same.

Q. 121. And that you say is on the Mountain?

A. On the south side of the ridge, where I live.

Q. 122. What direction is that from the plant of the Ducktown Sulphur, Copper & Iron Company?

A. Why, I would say it was right about south of east.

Q. 123. Right about South of East?

A. Yes sir.

Q. 124. And about how far in miles by the road?

A. Thirteen miles to the Tennessee Copper Co.

Q. 125. I mean from Isabella.

A. Isabella, I do not know.

Q. 126. About seventeen or eighteen miles, you would say?

A. I would say somewhere in the neighborhood of seventeen miles.

Q. 127. You saw some damage there last year?

A. Yes sir.

Q. 128. Was that on the first crop, or prize crop?

A. I seen some on that that I speak of, on the prize corn. I do not know whether it got anything or not, much but on my late potato crop.

Q. 129. Did it hit your late potato crop?

A. Yes sir.

Q. 130. What effect did it have on your potato crop?

A. It was dry and in need of precipitation, in bad condition and it affected that.

Q. 131. You made 120 bushels to the acre in spite of that?

1273 A. Yes sir.

Q. 132. How much would you have made, if it had not been for these conditions?

A. I would have made, this year, I averaged four hundred and ninety bushels per acre.

Q. 133. On the same land?

A. Yes sir.

Q. 134. About 490 bushels is what you would have made the year before?

A. The year before on the same land, I made four hundred ten and a half bushels.

Q. 135. And you put in a sworn claim for damages to the land and they awarded you the large sum of fifteen dollars?

A. The large sum of fifteen dollars.

Q. 136. How much did you file your claim for, as you remember?

A. I could- exactly recall. I never thought of it coming up any more, but I claimed that I was damaged in the neighborhood of.—I know I filed a claim with them when they came through that I was hurt somewhere in the neighborhood of eight hundred dollars and divided that half and half to the sulphur fumes.

Q. 137. You thought half of that was due to the sulphur?

A. Yes sir.

Q. 138. And you swore to that?

A. To the best of my knowledge, I did.

Q. 139. Now, then, your winning the prizes in the State Fair and in the Fannin County Fair, naturally attracted the attention to you as being the best upland farmer and has attracted the attention of people interested in farming, fertilizer and farming implements, and things of that sort?

A. No, I do not know.

Q. 140. And the Morris Fertilizer Co. wrote you a letter?

A. Yes.

Q. 141. Asking you to write them a letter?

A. No sir, I have no recollection of them asking me to
1274 recommend it.

Q. 142. What did they write you?

A. Asking for the photographs.

Q. 143. You naturally wrote a letter when you sent them in, complimenting the Fertilized?

A. Yes sir.

Q. 144. Now, Mr. Addington, as a farmer of years of experience, would not you say, would you say, that your marvelous growth of corn, on that acre of upland was,—which surpassed your nearest competitor in the same section by 58 bushels, was due to the advanced methods of farming you used, as much as the fertilizer?

A. That was a part of the reason.

Q. 145. I mean, all that goes to make up good farming, that is what it is due to?

A. Yes sir.

Q. 146. And it was not due to any particular local condition, but simply to the work?

A. No, no. I had the sorriest place in the whole country when I come there.

Q. 147. In other words,—I do not know whether I am using the right term or not,—do you call it forcing your land, what do you call it, scientific farming?

A. I plowed the land when it was dry enough to plow, and when it needed to be plowed, I did not plant my crop, the same kind of crop year after year on the same land. I would change patches, rotate, and then I plow, I subsoil and break it up that exposes for plant food anything that was not available otherwise, bring it up to the air and with that kind of treatment, I brought the land up.

Q. 148. And when you alternate your crop each year, the refuse from that crop would go as a fertilizer for the next?

A. Certainly, and I saved every particle of waste and tried to return as much to the soil as I take from it.

Q. 149. Yours was an exceptional crop for that section of
1275 the country?

A. Yes sir.

Q. 150. Was there much smoke over that section last summer?

A. I never noticed any, that I can call to memory, only it dropped in on me that particular time.

Q. 151. You were just noticing your own land?

A. Just watching my own land.

Q. 152. Was there a general complaint of smoke made over the country?

A. There always has been, ever since I came back from the West.

Q. 153. And that has continued on up to the present date?

A. Yes sir, I heard too much of it, I do not pay any attention to it.

Q. 154. You know this is a fact, Mr. Addington, that the smoke will come in to a place and settle down on the place, hit one spot, and then a quarter of a mile over there some other land would be damaged, or maybe that distance away nothing would be damaged at all.

A. Sure.

Q. 154. Just where it hits is where it damages?

A. Yes sir.

Q. 155. And the coves in the ranges of the mountains that open toward the plant on the side that faces in the direction of the plant are very likely to injury, more so than the side further away, and facing the other way.

A. I have never studied it.

Q. 156. And when the wind is from the west in your section, it drops the smoke over on you?

A. No sir, rather from northwest.

Q. 157. A little north of west?

A. A little north of west.

Q. 158. What are the prevailing air currents in your country?

A. They vary anywhere from any old direction.

Q. 159. And when they are from a little north of west 1276 they bring it down there on to your place.

A. Yes sir.

Redirect examination.

By J. A. Fowler, Esq.:

Q. 160. Mr. Addington, you say when your potato-s were injured by smoke, that it was about the end of a dry season?

A. During the dry season, I do not know whether it was the end of it or not, but during the dry season, along there somewhere the smoke struck them. I smelled the smoke, seen it, and seen the potato leaves crisp up that lay beside the prize acre. I never noticed it anywhere else, because I never watched it. I have enough to keep the weeds out of the corn.

Q. 161. That was after the dry season had been on for some time?

A. Yes sir, the dry season was on.

Q. 162. And by that time the leaves of the potato-s were drying up anyway, turning yellow?

A. Drying up, yes sir, but some of them has crisped.

Q. 163. I know, but were or not the leaves drying up before the smoke struck you?

A. No. No, it was the smoke, if anything was smoke, and if not, we have no smoke in that territory.

Q. 164. You say that was one time last year?

A. Yes sir, one time.

Q. 164. It struck your patch of potatoes and one piece of corn?

A. Yes sir.

Q. 165. It did not hit the balance of the stuff?

A. No, I did not observe it, if it did.

Q. 166. Whether it hit anywhere else in your neighborhood during the last year or not, you do not know?

A. No sir, I do not.

Q. 167. And where that came from you do not know?

1277 A. Well, we all supposed it come from the furnace, you know it smelled like it and looked like it, and as they said, it all came from there.

Q. 168. You do not know whether it came from the high stack or the other one?

A. I think it came from the high stack.

Mr. DRAKE: We except to that as a conclusion without facts stated to base it upon.

WITNESS: I have certain reasons why I would say that.

Q. 169. I wish you would give those reasons.

A. The first reason is, we used not to be bothered with smoke there before the high stack was built. The next reason, that stack throws the smoke into the upper layers of the air where they are carried over and dropped on to us. Where they are brought right down to us, that is the main reason.

Mr. HILL: We except to that as a conclusion and an answer to the whole issue involved in the case.

Q. 170. Are there any other reasons?

A. Those are the only two reasons I know of, I did not notice the smoke before the stack was built, I heard so much complaint before, and the other reason, is the altitude that it is at when it goes out of that stack, it will naturally drop up over there, then drop out on to the ground.

Q. 171. What was the name of that man who took the second prize?

A. I do not know his name, I do not know whether I ever heard of it, I just seen little sketches of it in the Constitution.

Q. 172. Where did he live?

A. In Georgia.

Q. 173. How far from the state line?

A. I do not know. I think it was in middle Georgia.

1278 Q. 174. No, I am talking about the man in Fannin County.

A. Oh, I thought you were talking about the State prize. He lives near Blue Ridge, on Sugar Creek.

Q. 175. What is his name?

A. Cochrane.

Q. 176. How far does he live from these furnaces?

A. I could not tell you.

Q. 177. Does he live as far as you?

A. No, I think not.

Recross-examination.

By LEON HILL, Esq.:

Q. 178. And, Mr. Addington, you do not mean to say that the smoke from the Ducktown furnace rolls out on to the ground, they have a stack, too.

A. That is my idea, you know what I mean.
Q. 179. Their stack is seventy feet high?
A. I do not know how high it is, it is not near so high.
Q. 180. You do not know anything about whether the Ducktown plant is located on higher ground than the Tennessee plant, do you?
A. No, I do not.
Q. 181. You do not know what the relative altitudes of the two stacks is, do you?
A. I do not.

Further deponent sayeth not.

—— ——.

Sworn to on this, the twenty-fourth day of June, A. D. 1914.

—— ——,
Deputy United States District Court Clerk.

The total distance traveled by this witness from his home to Knoxville, the place of giving his deposition, and return to his home was two hundred and sixty-two miles.

1279 STATE OF TENNESSEE,
County of Hamilton:

I, Chas. M. Fain, Notary Public, in and for said state and county, and stenographer, certify that the foregoing transcript is a true and correct, and honest transcript to the best of my skill and ability of my notes taken in shorthand.
This June 28th, 1914.

CHAS. M. FAIN. [SEAL.]

(Endorsed:) Supreme Court U. S. October Term, 1914. Term No. 1 Original. The State of Georgia, Complainant, vs. The Tennessee Copper Company et al. Evidence for the Defendant, The Ducktown Company. Filed June 30, 1914.

1280 S. M. BAIN, the next witness called, being first duly sworn, upon examination, deposed:

Direct examination.

By J. A. FOWLER, Esq.:

Q. Now what is your age?
A. Forty-five the fourteenth day of last January.
Q. 2. What position do you hold at the present time?
A. Professor of Botany, University of Tennessee, and Botanist of the Tennessee Experiment Station.
Q. 3. How long have you held the position of Professor of Botany at the University of Tennessee?
A. I was promoted to a full professorship in 1901, I think it was.
Q. 4. In that position as Botanist in connection with the Experi-

ment Station, are you in the employ of the United States Government?

A. Well, not directly.

Q. 5. What are your duties in connection with that position?

A. As Botanist, did you ask, or Professor of Botany?

Q. 6. Your connection with the Experiment Station.

A. Yes, my Experiment Station duties you referred to?

Q. 7. Yes.

A. Well, it is the investigation of various problems in connection with causes and prevention of plant diseases and answering inquiries
relative to the diagnosis of plant diseases from specimens and
1281 various other questions of Botanical character.

Q. 8. What are your duties as Professor of Botany at the University?

A. Teaching the subject to students.

Q. 9. Are you the head of that particular branch of work in the University?

A. I am.

Q. 10. Where were you educated?

A. I got my common school education and equivalent to a college course, classical, at Eagleville School, in Rutherford County, Tennessee, and then I afterwards devoted practically all my time to the study of several different sciences, more particularly Botany. Most of my scientific work has been done without any teacher, independent study. I studied some at the University of Tennessee where I came as instructor in 1893.

Q. 11. Have you taken a degree from any school?

A. Yes, sir.

Q. 12. Which school?

A. 13. From the Eagleville School.

Q. 14. How long have you been engaged in the official study of Botany?

A. About twenty-four years.

Q. 15. State whether or not you have done any literary work in that line, especially in connection with experiment work.

A. In scientific literature, do you mean the writing of it?

Q. 16. I mean the writing of it.

A. I have some, yes.

Q. 17. What work have you done in that connection?

A. I have devoted my time principally to the investigation
1282 of two or three plant diseases, as a matter of scientific research,
especially the effect of fungicides on peach foliage, with a view of controlling the brown rot of peaches. I investigated clover diseases, and in the course of the investigation discovered a new disease of clover in this state and devised a remedy to abate it. I have also written on a number of related subjects.

Q. 18. Have you made any special study of copper poison on leaves?

A. I have.

Q. 19. When did you make that special investigation, Professor

A. It extended over a period from about 1895 to 1902, severa years of investigation, the experimental part of the research covering the three years from 1899 to 1901, and published a report on it.

Q. 20. What particular copper poisons did you especially study?

A. Well, I studied quite a number of compounds of copper, the special object of the experiments was to study the conditions affecting the Bordeaux mixture on peach leaves and studied the effects on other plants for comparison with that on peach.

Q. 21. How are those copper poisons, of which you studied, generated?

A. Well, the copper mixture that is applied on leaves is made by the diffusion of lime and a solution of copper sulphide, that is the mixture that is used in the control of plant diseases.

Q. 22. Are they used for spray?

A. Yes, sir.

Q. 23. Are you the Samuel M. Bain, who was the author
1283 of the bulletin of the Agricultural Experiment Station of the
University of Tennessee, which is entitled "The Action of Copper on Leaves, with Special Reference to the Injurious Effects of Fungicides on Peach Foliage?"

A. I am.

Q. 24. In what year was that published?

A. 1902, I believe.

Q. 25. Can you state to what extent that was regarded as authority upon the subject?

A. Well, it is a standard work upon the subject, so regarded in this country and in Europe, and practically all the civilized countries as a material contribution to the subject.

Q. 26. I read you a sentence from Bulletin No. 287 prepared at the Geneva, N. Y. Experiment Station and will ask you if it refers to you.

"Bain's splendid work in laboratory and field shows not only that there are injurious effects from the use of copper compounds on the foliage of the peach, but the manner in which such injury is produced."

Are you the gentleman to whom mention is made there?

A. Yes sir.

Q. 27. Have you prepared any other bulletins besides the one I have shown you for the Department of Agriculture?

A. Yes sir, that is, for the Tennessee Experiment Station, and published quite a number of other scientific papers on related subjects.

Q. 28. Name some.

A. I have published; it will be hard to give the exact dates they were published, I have published one on Clover Diseases, which I referred to a while ago, in connection with my assistant, and a paper
in 1895, entitled 'Anthracuose of Alfalfa and Red Clover,"
1284 and published a paper in connection with my assistant some
time about 1907, I believe it was, on Selection for Disease Resisting Clover, and published a number of other papers, I cannot recall all of them.

Q. 29. Did you have any connection with the University Summer School at Athens, Ga.?

A. I lectured there two years ago this summer.

Q. 30. In 1912?

A. 1912.

Q. 31. I see under the list of officers or instructors for that year, the name of Samuel M. Bain, Ph. D. Lecturer, Professor of Botany University of Tennessee, that is you?

A. That is correct, all except the degree, that was the mistake o the authorities at Athens.

Q. 32. Coming nearer the point, Professor, have you made an special study of the conditions around Ducktown, Tennessee, an in North Georgia, with reference to the smoke which has bee emitted and is being emitted from those furnaces upon the foliag and vegetation, including the forests in that locality?

A. I have.

Q. 33. At whose instance did you made those investigations?

A. Of the Ducktown Sulphur, Copper & Iron Company.

Q. 34. About when were you first employed to make this investigation?

A. In September, Sept. 12, 1913, or 13th. It was the 13th I arrived there.

Q. 35. During what day did you do your first work?

A. It was from the 13th of September to the 22nd of Septembe

Q. 36. What did you do on those days?

1285 A. In company with Mr. Reese, I went through the fore properties Vestal principally, over a considerable portion o that territory.

Q. 37. Where are those properties located?

A. They are, I did not keep up especially with the location, have my itinerary plotted on the map here.

Q. 38. Now, would you please file this map as Exhibit A to thi Deposition?

A. I do so.

Q. 39. Will you explain your itinerary on that occasion?

A. Well, the first day, let me see, on Monday the 15th., I lef Isabella, I believe and followed on the several dates the outline give here on this map. We came on down to Patterson Gap, followin this route down here, that is, in Fannin County, down on the Jack River, followed up and down the stream as marked on this map here then made an extensive trip from the 19th to the 22nd. inclusiv left this Jacks River country, and from this trip up here, droppin across into the Tennessee Line a little way there, into Murra County, right down the old Federal Road, down by this point righ down to Ellijay where I took the train for Knoxville.

Q. 40. Is that trip indicated by red lines on the map you hav filed as Exhibit A?

A. Yes sir.

Q. 41. Did you on that occasion go over the entire route that shown by those red lines, or just a portion?

A. Yes sir, this trip over here, was made at a subsequent date, that is, to Mineral Bluff.

Q. 42. Then is, or not the first trip illustrated by the red lines beginning at Isabella and ending at Ellijay and the lines lying on the left hand side of the map as you look at the map?

1286 A. Yes, sir, that is correct.

Q. 43. State what you did on that trip?

A. I made careful study of the condition of the foliage of trees and vegetation in general that I saw along the route and collected specimens and made photographs.

Q. 44. That was last year? In 1913, I believe you said.

A. Yes sir.

Q. 45. I wish you to describe the condition of the foliage at that time.

A. I saw no condition of foliage that would indicate any smoke injury. On the foliage I found various insect injuries, not many, some fungi, but nothing in the character of the foliage to indicate any damage by sulphur fumes.

Q. 45. Did you find any dead trees?

A. Yes sir.

Q. 47. How long did they appear to have been dead?

A. It would be difficult to say, in many instances.

Q. 48. Was it possible to state from what causes they died?

A. Not in every instance.

Q. 49. Did you see any unusual number of dead trees?

A. No.

Q. 50. Did you see any evidences of any other character of diseases than appear in forests elsewhere?

A. No, not so far as I know.

Q. 51. Did you take any specimens of any kind on that trip?

A. Yes, sir.

Q. 52. What character of specimens were they?

1287 A. I got a few leaves of white pine, they were diseased, some leaves that were injured by insects, as Chestnut leaves, for instance, eaten by red spiders, with fung-us diseases on the Chestnut Oak, I believe it was.

Q. 53. Did you find any diseases on the foliage that you could not account for, otherwise than having been produced by smoke?

A. No.

Q. 54. After a careful examination of those diseased leaves, were you pretty certain as to what the disease was?

A. That is, so far as anybody knows. So far as is generally recognized by Pathologists.

Q. 55. You took no borings from trees on that occasion?

A. No, I took some sections from trees, cut from land adjacent to this property.

Q. 56. Did you make a trip after that through that section.

A. Yes sir, that is, into North Georgia, after that.

Q. 57. When did you make the second trip?

A. The second trip was on the fourth day of October following, the fourth to eighth, inclusive.

Q. 58. Where did you go on that trip?

A. I went to the left of Isabella and went on the road indicated o the map there by the red line to the right,—wait, I am mistake about that date awhile ago. It was from the fourth to sixth, i clusive.

Q. 59. You mean that it was October, 1913, 4th to 6th?

A. Yes, sir. On that trip we went as far into Georgia as Blu Ridge, I believe,—let me see, Mineral Bluff,—Blue Ridge.

1288 Q. 60. How far is that from the State line, just give yo best information.

A. It appeared to be about eight miles on a line.

Q. 61. How far is it from Copperhill?

A. It must be about eleven miles, air line.

Q. 62. What did you do on that trip?

A. It was very much the same character of investigation we ha done on the former trip, examined the condition of vegetation an also making some color photographs illustrating the condition foliage.

Q. 63. Had the frost fallen previous to that trip?

A. I think it had. I could not say to what extent the damag was, but I saw some frost in the region of Ellijay on the first trip.

Q. 64. What did you find the condition of the foliage to be on th second trip?

A. Well, it was nothing that might not be found in similar r gions at the same time of the year.

Q. 65. Did you see any evidence whatever of any smoke damag to the foliage?

A. I did not.

Q. 66. Have you made a trip since that?

A. Yes, sir, let me see, I made a trip starting from Copperhi and to the #20 Mine, right at the point where Tumbling Cre crosses the State line, October 17th, to 20th, 1913.

Q. 68. Now what did you do on that trip, Professor?

A. Well, about the same character of work that I had done on th former trips, making more particularly a study of the growth timber, the trees as affected by smoke as indicated by the thickne of the annual rings. I got some photographs showing the veget tion.

1289 Q. 68. By that time, were the leaves beginning to chang color?

A. Oh yes, quite red, a good many of them falling.

Q. 69. Did they appear to be diseased any?

A. No.

Q. 70. State whether or not you saw any evidence of smoke da age on that trip.

A. Not on the leaves.

Q. 71. Did you find any evidences of any smoke damage duri that year on the trip?

A. No sir, none on the foliage.

Q. 72. Have you made trips since that time?

A. Yes sir.

Q. 73. When?

A. On the 22nd and 23rd of January I left Ducktown and went the Ocoee River, that trip is not plotted on the map.

Q. 74. How long were you there on that occasion?

A. You mean in Georgia; the 23rd and 24th, two days.

Q. 75. I suppose the foliage was all off the trees at that time.

A. All except the evergreens, of course.

Q. 76. Did you see any evidence of smoke damage on the ever-reens?

A. None.

Q. 77. What did you do on that trip?

A. Most of the work was in taking of cores from trees to determine ate of growth.

Q. 78. Do you remember how many specimens you took?

A. I have from numbers 200 to 228, about twenty-eight,
290 I believe.

Q. 79. From what kind of trees did you take them?

A. A number of different kinds, I have some on Post-Oak, Yellow ine, Chestnut, Crab-Apple, Black-Jack, Spanish Oak, Birch and illow.

Q. 80. Is that the last trip you have made there?

A. I made one trip into Georgia on the eighth of June of this ear.

Q. 81. Of the present year?

A. Of this year.

Q. 82. Where did you go at that time?

A. I went from Copperhill across to the road leading from Copper-ill to Pierceville, and on to Epworth and returned by the road lead-ng over Rodgers Bridge.

Q. 83. What time of the day did you start out, on that trip?

A. We must have left Copperhill about seven o'clock, no, I beg our pardon, we left Ducktown at six by the Morgantown and Min-ral Bluff Road.

Q. 84. What did you do on that trip, Professor.

A. We made several color photographs along the road and in-pected the condition of vegetation, foliage, smoke damage particu-arly and collected a few specimens.

Q. 85. What time of the day did you get to Epworth?

A. To Epworth it must have been somewhere around eleven 'clock, I presume, I am not sure.

Q. 86. Had you taken your color photographs previous to that our, eleven o'clock?

A. Previous to eleven o'clock,—let me see; yes.

Q. 87. What did you do in the afternoon?

A. We returned by the number 20 Mine and over the
291 *bridge* at Rodgers Bridge.

Q. 88. Did you make a careful investigation of the foliage n that trip?

A. I did.

Q. 89. Both going and coming?

A. Both going and coming.

Q. 90. How many color photographs did you make?

A. I made on that trip, two, three, four, five, six, seven, eight, nine, ten, I make it ten.

Q. 91. Were all of those ten photographs made in Georgia?

A. One was just looking into Georgia across the State line at one of the gardens, right at the line.

Q. 92. And the others were all of points in Georgia?

A. Pardon me just a moment. I am not sure whether the state line runs with the River at Rodgers Bridge or not, I got one photograph right from the end of the bridge looking southward. I am not prepared to say whether that was in Georgia or Tennessee, I am under the impression it was on the other side.

Q. 93. Have you those photographs with you?

A. I think so.

Q. 94. Would you please file them as Exhibit- Nos. 1 to 10 to your deposition?

A. I do so, they are numbered 538 to 547 inclusive and I file them as Exhibits Nos 1 to 10 inclusive.

Q. 95. Will you please state briefly, Professor, what those photographs are?

A. My No. 538, that is, Exhibit No. 1 is the garden and house o a roadside right at the Georgia and Tennessee line, made on th eighth day of June last. It is known, I understand, as the Pig. Buc place. It does not show anything particularly except the Iris 1292 Potato patch on that place. My No. 539, Exhibit No. 2, is general view of gardens, etc. in the small valley in Painte town, about one-sixteenth of a mile from the Georgia line, and th distance from the Works is marked on the picture.

Q. 96. How far is that point from the furnaces?

A. That is three miles South of Isabella, one and one-half mile southeast of Copperhill.

Q. 97. Are those distances correctly stated on the label on each of these photographs?

A. I think so.

Q. 98. I mean the distance from the point the photograph wa taken to each of those furnaces.

A. Yes, sir, I have been very careful, I do not think there has been any mistake. My picture No. 540, Exhibit No. 3 is the garden o J. H. Lee, which is the last point in Paintertown, showing the cabbage, onions, and other vegetables.

Q. 99. How far is that?

A. The same distance, practically, part of the same landscape.

Q. 100. The next.

A. My No. 541 Exhibit No. 4, is a garden along this road that w traveled that day. I did not learn the gentleman's name. Just off th road, about a mile and a half from Copperhill, making it about fou and one-half miles south of Isabella, which shows cabbage, onions beets, and several other vegetables. My No. 542, Exhibit No. 5 is view of the forest taken from the road leading from Mobile, abo one mile west of Epworth, near Fightingtown Creek, showing th timber growth of forest oak and other hard woods. My No. 54

Exhibit No. 6 was a general view taken on the road from
1293 Epworth to Mobile, about a mile west of Fightingtown Creek and near the Mobile Creek that was two and one-half miles outhwest of Copperhill and about five and a half southwest of Isaella, showing the general landscape. My picture No. 544, Exhibit No. 7, shows a house and dooryard of J. W. Patterson, in North Georgia, about five miles southwest of Isabella and two and a half miles southwest of Copperhill, it is not a very good picture, but shows the condition of vegetation quite well. My picture No. 545 Exhibit No. 8 is a garden at the same place, looking toward one corner of the house, showing beans, Irish potatoes, cabbage, rhubarb, sage, horseradish, etc. My picture No. 546 Exhibit No. 9 is a general view into Georgia, looking eastward from near the fork of the road leading from Copperhill to Pierceville, two miles west of Copperhill and six miles southwest of Isabella, showing the general condition of the trees and other plants. My picture No. 547, Exhibit No. 10 is a view taken at Rodgers Bridge on the Ocoee River, showing the residence of J. H. Rogers, this is three miles west of Copperhill and about five and a half southwest of Isabella.

Q. 101. Now, Professor, in addition to taking these photographs, did you make a careful inspection of the foliage?

A. I did.

Q. 102. Was it fully developed at that time?

A. I think so.

Q. 103. What was its condition?

A. Generally speaking, the condition of the foliage was good.

Q. 104. Did you see any evidence of injury from smoke?

A. I did.

Q. 105. Where was that?

1294 A. I saw some evidence of injury just at the river bank, at this bridge.

Q. 106. Was that in Georgia or Tennessee?

A. It was at the river there. I think it was on the Tennessee side, as I understand, but it was at the bank of the river.

Q. 107. What river is that, the Ocoee?

A. The Ocoee river, yes.

Q. 108. That is about where it changes its name, I guess, in Georgia, it is the Toccoa, at what particular point are you referring to now?

A. At Rodgers Bridge, that is the last point I spoke of.

Q. 109. Do you know, Professor, whether that is in Tennessee or Georgia?

A. No, not of my personal knowledge.

Q. 110. What was the nature and extent of the injury at that place?

A. I saw damage to beets and potatoes in the garden, also leaves of the Elder and Jerusalem Oak at the bank of the River.

Q. 111. Did it appear to be fresh damage?

A. Yes, comparatively.

Q. 112. What time of the day was it you saw that?

A. That was in the afternoon, must have been close to four o'clock.

Q. 113. Did — appear to have been done that day?

A. I could not say definitely.

Q. 114. Did you see any other evidences of damage by smoke on that trip?

A. Yes, sir.

Q. 115. Where was that?

1295 A. I saw some. I noted some not very far from where that photograph was gotten, my No. 540. Some injury to Maple shoots, the young shoots of the Red Maple, I think was not due to smoke, I am quite certain in fact, but just what it is. I have not been able to determine.

Q. 116. What time of the day did you notice that?

A. That must have been about, oh, all along the road wherever the tree occurs I saw it, from, it must have been eight o'clock, eight or nine, that was not fresh injury however, it had been done some time and the shoots were dried and blackened.

Q. 117. Can you state what kind of injury that was? Or what the disease was?

A. No, sir, I cannot.

Q. 118. State whether or not you are clear in your mind as to whether it was smoke injury.

A. I am quite sure it was not smoke injury.

Q. 119. What was the appearance of the diseased tree?

A. The terminal shoots, that is the buds, had died and blackened, and perhaps two or three leaves back of the bud were black and dried up and some of the tops of the leaves were somewhat injured.

Q. 120. Did you notice any other injuries or diseases on that trip?

A. Yes, sir, I noticed injuries to Blackjack Oaks, along the road not very far from Epworth, that is along the road from Copperhill to Epworth.

Q. 121. What was the nature of those injuries?

A. I think they were due to smoke.

Q. 122. Did they seem to be fresh?

A. Comparatively fresh.

Q. 123. Could you judge how long it had been done?

A. No, I could not say.

Q. 124. What time of the day did you notice that?

1296 A. It was perhaps about ten o'clock in the morning, it had not been done that day. It must have been done before that.

Q. 125. Now, that was about ten o'clock on the eighth?

A. Yes, sir.

Q. 126. Did you notice any other evidences of smoke injury? Just state all that you did notice.

A. I believe I spoke of some injury in gardens, one or two, mentioned already. I saw none that I can recall between Epworth and No. 20 Mine—Mobile Mine, it is, that I can recall. I made no note of such. There were some I believe—that is all I noted on that trip. In some instances, it was rather difficult to state positively whether foliage was injured by smoke. I have stated that with reference to these injuries on oak leaves. In gardens, for instance, occasionally you will find potato leaves in a dying condition, and it was uncertain as to whether it was smoke or some fung-us disease, or due to drouth.

Q. 127. Please describe what effect the smoke has upon leaves.

A. It manifests itself differently on different leaves on the different species. In many instances it is impossible to distinguish smoke damage, for instance, from drouth, and the botanist approaches the question rather by elimination of injuries known to be due to natural causes due to the various fungi diseases, or the work of insects, and by association, or rather the conditions surrounding the suspected injury. For instance, in the case of the Maple I have recalled. That is one of the reasons why the Maple injury could not be due to smoke. In the first place, Maple is one of the most resistant species to the action of smoke and if you find other plants decidedly more sensitive associated with it and not damaged, you are safe in assuming that the Maple is not damaged by the fumes.

Q. 129. In the vicinity of those Maples, did you find any
1297 other vegetation appearing to have been affected by smoke?

A. Not in this region.

Q. 130. What is the peculiar appearance of the leaf which has been affected by smoke?

A. As it is usually observed, it is brown at first, it has brown areas. Some leaves brown up in spots and then the spots become white. In the cases of pine and conifers the family to which pines belong, the tips of leaves under the mild action of smoke, become slightly pale in color, then redden and then brown, so it depends upon what stage you see the injury.

Q. 131. State whether there are other diseases which give the leaves a similar appearance.

A. In many instances, that is, to the casual observer.

Q. 132. Have you, Professor, preserved any specimens which show the similarity in appearance between leaves affected by the sulphur fumes and those affected by other diseases.

A. Yes, sir.

Q. 133. Have you those specimens present?

A. Yes, sir. I have some certainly not due to smoke, and some taken in the Ducktown region last fall.

Q. 134. Professor, you hand me a specimen of leaves which you have numbered 96, are those the figures, the date and the card attached to it *appears* the date October seventeenth 1913. Where did you obtain these leaves?

A. 96, is it?

Q. 135. No. 96, yes.

A. Those came from along the roadside about two and one-half miles from Copperhill towards No. 20 Mine, the injury which I did not assign to smoke, but collected in that region.

Q. 136. Do you know whether or not it was claimed to have resulted from smoke?

A. I do not know, in this case.

Q. 137. Will you please file that specimen as Exhibit No. 1298 11 in your deposition?

A. I do so.

Q. 138. What is the difference, Professor, between the appearance of that leaf and leaf injured by the smoke disease.

A. Very much the same.

Q. 139. You have handed me specimen of leaf which you have numbered 98, bearing the same date as the other, where did you obtain this specimen?

A. My numbers are mixed on that, you had better not put that in—no, that is right. That is right. That is all right.

Q. 140. What is your answer?

A. This was taken not very far from that last specimen—let me see, now wait a minute.

Q. 141. Was that obtained on the same trip?

A. Same trip.

Q. 142. Did you know what disease these leaves are affected with?

A. It is drouth.

Q. 143. Did or not the sulphur fumes have anything to do with the condition of those leaves?

Answer. They did not.

Q. 144. Please file that as Exhibit No. 12.

A. I do so.

Q. 145. You have handed me Exhibit No. 88, the card attached to it bears the date of October 12th, 1913, where did you obtain that specimen?

A. Oct. 12, that came from the top of Chilhowee Mountain, in Blount County.

Q. 146. How far is that from the copper furnaces at Ducktown?

A. It must be eighty miles.

Q. 147. When did you obtain this specimen?

1299 A. That was on the 12th. of October, 1913.

Q. 148. Please mark this specimen as Exhibit No. 13.

A. I do so.

Q. 149. Were those leaves in the last specimen shown you diseased in any way?

A. None, I think, except by the drouth.

Q. 150. Is there any particular difference in the appearance of the last specimen and the other two specimens?

A. I could not find any. In the fresh condition the resemblance appears perhaps more striking than it is now in the dried specimen.

Q. 151. Had there or not been a drouth in that whole section of the country previous to the time you took these specimens?

A. I could not say.

Q. 152. Was it the dry season of the year?

A. It was the dry season of the year and the location was a dry one.

Q. 153. State whether or not, Professor Bain, those conditions, the condition of these leaves may be due from want of moisture reaching the leaves.

A. From the roots, you mean?

Q. 154. Yes.

A. Well, that is what I mean by drouth effect.

Q. 155. Suppose there is a diseased condition of the root of the tree?

A. That would have the same effect.

Q. 156. Now suppose the forest fires have passed through that country, or something of that kind.

A. The same effect.

Q. 157. Anything that would prevent moisture from reaching the leaves through the fibers of the trees?

A. Yes, sir.

Q. 158. Professor you have handed me a specimen of
1300 Pine twigs, which appears to be numbered eleven, the card
attached to that is dated September 16th, 1913, where did you
obtain that specimen?

A. That is taken from a White Pine, which is in a sickly condition on the property of John T. Jones, Lot 186 in North Georgia.

Q. 159. How far is that point from the furnaces at Ducktown?

A. From Copperhill it is 11 miles, from Isabella, 14.

Q. 160. Do you know what was the matter with the Pine tree?

A. I think I do. That is, I think I know the disease, that is generally recognized.

Q. 161. What was that disease?

A. It is generally known as the leaf tip disease of the White Pine?

Q. 162. And by what is it produced?

A. It is unknown.

Q. 163. Is that disease found elsewhere than in that section?

A. It is.

Q. 164. Through what sections of the entire country is it found?

A. Throughout the eastern United States, reported from Massachusetts to North Carolina, on record as having been found over that section of the country.

Q. 165. How long has that disease been affecting the White Pine?

A. I cannot tell you, I do not think it is known.

Q. 166. How long have you known of it?

A. I never investigated it until I made this investigation about Ducktown.

Q. 167. Did you then make a careful study of that disease as
found in the books?

1301 A. I did.

Q. 168. In many of them?

A. There are several authors on that subject. (The witness refers to a book.)

Mr. Drake: I object to the professor referring to any author to answer these questions.

Exception overruled and appeal taken.

A. There is a dry rot to the roots, and the blight recognized on White Pine.

Q. 169. What effect do these diseases have on the tips of Pine?

A. This leaf tip disease is the only one I am familiar with, the one that is affecting this specimen here.

Q. 170. I presume when the Pine is affected with the diseases you mention, the leaves all die?

Mr. Drake: I object to the Professor referring to authorities to answer these questions. If he knows independent of any authority, why of course we will not object, but if he refers to authorities I think the evidence *evidence* and should be put on the stand.

Exception overruled and appeal taken.

A. A tree affected by any serious disease, of course, suffers death in the leaves.

Q. 171. That is one of the first principles in the life of trees?

A. Not always, but a tree in a diseased condition will make its appearance in the leaves, that is one of the first symptoms.

Q. 172. And this peculiar disease you have mentioned, the tip disease is one in which the disease first appears in the tips of the leaves?

A. Yes, sir.

Q. 173. How do smoke fumes affect the life of the White
1302 Pine?

A. Very much the same way, that is, the early stages of the injury.

Q. 174. Will you file as Exhibit Fourteen, the specimen Exhibit No. 11, to which you have testified?

A. I do.

Q. 175. Have you any other specimens, Professor, showing the like effect upon Pine. If so, will you please present it?

A. Yes, sir, my No. 46, shows the same condition upon Pine leaves taken on the Road between Eton and Ellijay, in Georgia, within the Murray County line. I remember passing the County Line mark just before finding the specimen.

Q. 176. Was that specimen obtained at the same time?

A. On the same trip, that is, on the 21st of September.

Q. 177. How far was the point where you obtained that specimen from the furnaces at Ducktown?

A. I think it is about nineteen and a half miles, as I scaled it on the map.

Q. 178. Is there any difference in the disease of the two specimens?

A. None that I could detect.

Q. 179. Will you please file this specimen, your No. 46, as Exhibit No. 15?

A. I do so.

Q. 180. Did you notice White Pine or other White Pine than the one from which these specimens were taken which were affected the same way?

A. I have found specimens with the same diseased condition in Sevier County, as I found this tree.

Q. 181. Did you go into Sevier County to compare the foliage and appearance of growth there with the appearance and growth in the section you went through South of Ducktown?

1303 A. Yes, sir.

Q. 182. How many days afterwards?

A. It was on the 26th day of September, this was on the 21st, that was five days afterwards.

Q. 183. Was there any difference in the extent of the disease as manifested in Sevier County from its extent in North Georgia?

A. I did not go over enough territory to judge of its extent, but the conditions were just about the same.

Q. 184. What difference did you detect in the appearance of foliage in Sevier County from its appearance in North Georgia?

A. Well, the leaf tip trouble was especially marked in the Yellow Pine at Elkmont, in Sevier County, the point where I stopped. And then, I have found trees presenting the same pathological conditions in Blount County up in a little section known as Millers Cove. There is not very much of the White Pine at the point I visited in Sevier County, investigating the conditions.

Q. 185. And how far was that point in Sevier and Blount Counties from Ducktown?

A. Around eighty or ninety miles.

Q. 186. With reference to other trees, did you find a difference in the appearance of the foliage in Sevier and Blount Counties, than in North Georgia?

A. I found the evidence of frouth more severe in going along the railroad in Sevier County than any of the points in North Georgia where I visited. For instance, the Maples and other trees showed the drying of the foliage more severely in Blount and Sevier Counties than they did in Georgia.

Q. 187. Were there any other differences?

A. I found trees of what is popularly known as the Nigger Pine dying from attacks of the Beetle in Blount County very much more severely than any point in Georgia I visited. I made the note
1304 on that trip that I made in Blount County to that effect, that
I had seen more dead pine trees in a distance of about five miles than I had seen in the whole trip in Georgia. I examined the trees at one or two points and found them being killed by this beetle, and others that I saw from the railroad presented the appearance of dying from the same trouble.

Q. 188. Then, Professor, as a whole, in which section did you find the most diseased and dead timber? In North Georgia, or Sevier and Blount Counties, Tennessee.

A. Well, I believe there has been more destruction by fire perhaps in the section I visited in North Georgia than there has been in the high mountains of Sevier County, where I,—well I do not know, there are perhaps,—there is no great difference possibly about the same.

Q. 189. Leaving the fire out of consideration and just considering the diseases to which the forests are incident to, where did you find the most diseased timber?

A. There was more that I could recognize in Blount County.

The hour of noon approaching, the further taking of this deposition was adjourned until two o'clock P. M. of this day.

Pursuant to adjournment, the further taking of this deposition was resumed at 2 o'clock P. M. on this the 22nd day of June, 1914, at the same place and in the presence of the same parties.

1305 Q. 190. Have you taken any color photographs of conditions which you found in Blount County?

A. I have.

Q. 191. How many have you with you?

A. Three, I believe.

Q. 192. Are these all that you took?

A. 649, 50, 51 and 53,—I have four, I believe—wait a minute, there is another one still on the strip I took six altogether, I believe.

Q. 193. You took six photographs in that County?

A. Yes sir.

Q. 194. For what purpose did you take those photographs?

A. I took one, I remember illustrating the general conditions in the high mountains of Hemlock timber.

Q. 195. Which one was that?

A. That is my number 56.

Q. 196. What is the answer?

A. I took one illustrating the Hemlock forests under the best of conditions in the mountainous section. I took one illustrating the top dying of Chestnut trees, one *one* illustrating the dying of pine trees, one I spoke of before. I mentioned one about the dying top of Chestnut and also the dying of White Pine by apparently the same trouble that exists in the Ducktown region of North Georgia. I should say, I have two of them.

Mr. **Drake**: We object to that answer as being indefinite and a conclusion.

Exception overruled, and appeal taken.

A. (Continued:) And one of Birch trees showing the top dying.

Q. 197. Did you develop all six of those photographs?

A. I did.

Q. 198. How many have you present with you?

1306 A. I think I have them all.

Q. 199. I hand you your photograph No. 49 what was that intended to represent? And please file same as your Exhibit No. 16.

A. I file the same as Exhibit No. 16 to my deposition. That shows on the left of the picture two freshly dead pine trees, popularly known throughout this section as the Nigger Pine, from the beetle referred to in the former answer.

Q. 200. I show you your photograph No. 50, what does that represent, and please file it as Exhibit No. 17.

A. That represents the top dying of the Birch Trees near my summer house at Elkmont in Sevier County, Tennessee.

Q. 201. Sevier County, Tennessee?

A. Yes, sir, illustrating what I believe to be a purely physiological condition resulting from the clearing of the forest.

Q. 202. Did you find anything of that kind in the Ducktown region of North Georgia?

A. I did not find much on the birch, but on the Chestnuts more particularly I did.

Q. 203. I show you photograph No. 51, state what that is and file it as Exhibit No. 18.

A. I do so, I file same as Exhibit No. 18. This represents in the immediate foreground, two White Pines just below Wonderland in Sevier County, Tennessee, dying exactly with the same symptoms as I found the trees observed in North Georgia which are referred to.

Q. 204. I show you photograph No. 55, state what that represent- and file it as Exhibit No. 19.

A. I fine same as Exhibit No. 19. This is another view near the last, showing the White Pine dying of the same symptoms. In this group I remember seeing about twelve Pine trees in a dying condition and mixed in with them is a Hemlock in perfect state of health.

1307 Q. 205. I show you photograph No. 56, state what that represents and file it as Exhibit No. 20.

A. I do so. That represents a view of one of the mountain slopes near Clingman's Dome, at an altitude of perhaps 3,500 feet, perhaps 4,000, showing the Hemlock in as good condition as I found it anywhere in the Mountains of this section.

Q. 206. In what particular locality is that?

A. About 6 miles east of Elkmont on Little River in Sevier County, near the North Carolina line.

Q. 207. That picture is taken to show the forest in good condition?

A. Good condition. It is quite a moist climate and before any timbering was done, fires were not apt to break out.

Q. 208. How far was the point represented in that photograph from these other photographs?

A. It is about the same distance I suppose as these other points, about eighty or ninety miles.

Q. 209. You do not catch what I mean, how far is this point from these other points?

A. That is about, possibly eight miles.

Q. 210. I show you photograph No. 57, state what that represents and file it as Exhibit No. 21.

A. I file same as Exhibit No. 21. That represents the top dying of Chestnut trees near this same point where—well, it is near Elkmont, Sevier County, Tennessee. That picture was gotten on the twenty-eighth day of September last year. That represents the top dying of Chestnut trees, as I interpret, from the lack of water caused by forest fires, or improper lumbering, and sometimes apparently from purely physiological causes.

Q. 211. Could you tell whether or not, Professor Bain, from your observations, whether or not the forest had been burned off from time to time through the North Georgia section?

A. Yes sir, it showed evidences of fire during the years
1308 past over this section.

Q. 212. What were the evidences of fire?

A. The scalded trunks of trees and occasionally tracts where the trees were apparently burnt over and dead, the most reliable evidence from the field study of the fires is from the scalds on the trunks of trees, I have an exhibit later that will show how we may tell the dates of these fires.

Q. 213. Was there very much underbrush throughout that section?

A. Not a great deal.

Q. 214. What effect do the fires have on small growth and underbrush?

A. It is likely to kill it.

Q. 215. State whether or not there is a considerable territory around Ducktown there which is barren of trees.

A. Yes, sir, a considerable area.

Q. 216. When you were there last fall, did they have any growth upon it at all.

A. Right near the works, it has no native growth, then as you go out you will see within a certain radius certain grasses that appear on the leeward side of the ridges as you go on forward from the works in every direction the conditions improve.

Q. 217. Is there any kind of grass which had grown on it and was then standing?

A. Yes sir.

Q. 218. What kind of grass is that?

A. More generally what is known as Sage Grass.

Q. 219. About how high was it?

A. About waist high. On the first trip that I made to Ducktown, I took a walk out from Isabelle towards Pack Mountain, and picked up on that one walk, in one afternoon, some sixty species, for the most part native plants.

1309 Q. 220. Did they seem to have been growing pretty well during the summer?

A. Well, some were and some were not. Generally where they were suffering for water they did not grow as well, perhaps certainly not as well as they would do in other sections. I found a number of grasses, sage grasses more particularly, seemed to grow as well as anywhere.

Q. 221. Did you find any of these species that seemed to have been damaged by sulphur fumes?

A. I did not see any evidences at all, of injured foliage, except in the cases of one Jimpson Weed, I remember to have noticed which seemed that it possibly might have been injured by smoke within a distance of a mile from the Isabella plant, on that particular trip.

Q. 222. In what direction is that from Isabella?

A. I think, if I remember, a little northeastward.

Q. 223. How far is that from the Tennessee Company's plant?

A. About four miles, I may state, however, that you ask me if I saw any evidence of any damage to foliage. I was telling you exactly what I saw. I did not attribute that injured leaf that I recall seeing to smoke damage. I saw the same thing, I thought at the time it was smoke damage, but I saw the same thing out in the country from Knoxville here a few days later on the Jimpson, tho I was rather surprised to see it.

Q. 224. You thought that one Jimpson Weed was damaged by smoke when you saw it, at the time?

A. Yes sir, at the time.

Q. 225. Did you observe plants when you came to Knoxville?

A. I have made several trips into the fields about Knoxville for comparative study.

Q. 226. Did you or not find similar conditions existing on plants in or near Knoxville?

A. I did, on the Jimpson Weed.

1310 Q. 227. Do you know what that disease was?

A. I did not, I did not investigate it very thoroughly.

Q. 228. Was that the only plant which you saw which was diseased, and which you attributed its diseased condition to the smoke fumes?

A. I was at the Staff House of the Ducktown Sulphur, Copper and Iron Co. and saw some plants, I do not recall now what they were, that showed a little injury to the foliage. I was not sure that that was smoke, but I supposed it was.

Q. 229. How close is that to the plant?

A. I think that is—I am not sure, that is right.

Q. 230. Well, feet or yards?

A. I do not think it is over a quarter of a mile.

Q. 231. State whether or not you made a careful inspection of the plant growth in that immediate section, right close to the furnaces.

A. I did.

Q. 232. And were not those the only evidences of smoke damage you saw?

A. The only ones I found. Those are all I recall.

Q. 233. And you say you examined about sixty species?

A. Yes, I found about sixty species of native plants in the region, during this one walk that I took.

Q. 234. Was that the only time you ever made an investigation right in that immediate vicinity, to see whether or nor the fumes were having any effect on the plant growth?

A. No, I watched for it every time I have gone to Ducktown, on several separate trips.

Q. 235. During last fall, up to the eighth of June, of the present year, did you find any other evidences than those you have mentioned of smoke damage in that vicinity?

A. Nothing that could be with any degree of certainty attributed to smoke.

1311 Q. 236. I was asking you a minute ago about the sage grass, what would be the effect, Professor upon burning that growth of sage grass that you saw there, on the small shrubs and plant growth, and the growth of different trees that were coming up?

A. Well, it would very likely kill out the young growth of trees, saplings.

Q. 237. Then, to what did you attribute the fact that it is practically barren of growth in the different sections immediately around the furnaces there?

A. Immediately around them?

Q. 238. Yes.

A. Well, the evidence is that some of the growth was cut away, you mean the trees?

Q. 239. Yes sir.

A. Well, some were cut down occasionally, cut stumps would be seen, and of course there is no doubt, from the inspection of the region, that smoke has killed out vegetation immediately surrounding the works.

Q. 240. Suppose that those acid plants were put in there from two to six years ago, had taken care of all the acid, and of all the poisonous matter that emitted in the fumes, state whether or not tree growth would have resumed on those barren lands around there to any appreciable extent by the present time.

A. I do not think it would. I—how long did you say?

Q. 241. From two to six years.

A. In those stages a tree would make a very little growth, in two to six years, as the condition of the country there is such, the land is badly gullied, and very little soil left to support the growth.

Q. 242. And then would or not the burning off the grass have the effect of killing it?

A. And the burning off of the grass would of course kill out the seedling trees, or have a tendency in that way.

1312 Q. —. Did you or not on the eighth day of this month take a number of photographs of grasses and trees growing around homes, etc., and in the vicinity of these furnaces?

A. I began that work on the fifth.

Q. 243. I show you photograph No. 501, please state what that represents, and file it as Exhibit No. 22.

A. This is a color photograph that I got on the fifth day of June, 1914. It is a general view of a portion of Ducktown showing the residences principally the peach trees scattered through there.

Q. 244. I show you photograph No. 502, state what that represents and file it as Exhibit No. 23.

A. That is another view of the Town of Ducktown, I got that on the same date as the last, looking about, maybe East, from the point where I was standing.

Q. 245. Are these memoranda upon the labels of each one of these photographs correct?

A. So far as I know. I went over them very carefully and checked up very carefully each one.

Q. 246. I show you Photograph No. 503, please state what that represents and file it as Exhibit No. 24.

A. That is another view, showing in the foreground beans growing in a garden inside of Ducktown and Cherry and Peach Trees just across the street.

Q. 247. I show you photograph No. 504, please state what that represents and file it as Exhibit No. 25.

A. 504 is a view of these same bean plants in the same garden as shown in No. 503 at close range, taken a few minutes after the other. I file same as requested.

Q. 247. I show you photograph No. 505, state what that represents and file it as Exhibit No. 26.

A. That is the peach orchard of John George H. Dodd and W. S. Maughan, in Ducktown showing two cherry trees in front of the house and peaches to the left. I file same as requested. 1313

Q. 248. I show you photograph No. 506, explain what that represents and file it as Exhibit No. 27.

A. That is another photograph showing the peach trees, corn, cabbage and other plants in Ducktown. That is on Mrs. Mills' place. I file same as requested.

Q. 249. I show you photograph No. 507, explain what that is and file it as Exhibit No. 28.

A. That is peach trees on Mrs. Nankevill's place in Ducktown, showing Mr. Reese to the left of the picture.

Q. 250. I show you photograph No. 508, explain what that represents and file it as Exhibit No. 29.

A. That is another view showing the peach trees, grass etc. in Ducktown, showing Dr. Spargis' place to the left of the picture. I file same as requested.

Q. 251. I show you photograph No. 512, what does that represent, and please file it as Exhibit No. 30.

A. Some more peach trees on Mrs. Yother's place in Ducktown, just back of the Ducktown Hotel. I file same as requested.

Q. 252. I show you photograph No. 513, what does that represent and file it as Exhibit No. 31.

A. That is another view of Mrs. Nankevill's place taken from a spot in Dr. Spargis' lot in Ducktown. I file same as requested.

Q. 253. I hand you photograph No. 514, explain what that represents and file it as Exhibit No. 32.

A. That is another view of Mrs. Nankevill's place with Mr. Reese's front yard in the foreground, showing peach trees, grasses and other plants in Ducktown, I file same as requested.

Q. 254. I hand you photograph No. 515, please explain what that represents and file the same as Exhibit No. 33.

1314 A. That is the garden of Columbus Pitman, in Ducktown, showing beans, tomatoes, pepper, beets and corn. I file same as requested.

Q. 255. State whether or not beans are susceptible to the effects of copper fumes?

A. They are.

Q. 256. Is or not the bean plant a rather tender one?

A. Rather tender.

Q. 257. How are tomatoes?

A. Well, they are more so.

Q. 258. I hand you picture No. 515, state what that represent and file same as Exhibit No. 34.

A. This shows two tomato plants in the foreground taken at close range in the garden of Columbus Pitman, nearer view of some of the last picture. I file same as requested.

Q. 259. I hand you photograph No. 517, state what that represents and file it as Exhibit No. 35.

A. That is another view of Ducktown, showing the Locust Trees on the left of the middle foreground and peach trees in the background. I file same as requested.

Q. 260. I hand you photograph No. 521, please state what that represents and file same as Exhibit No. 36.

A. That is the back yard and the veranda of Captain Nolde's house, not over three-sixteenths of a mile from the Ducktown Sulphur, Copper & Iron Co.'s smelter, showing the growth of vines and various plants in the back yard. I file same as requested.

Q. 261. I show you photograph No. 522, please state what that represents and file same as Exhibit No. 37.

A. That is a general view of the house of Captain Nolde, taken from a little greater distance and the end of the house to the left directly in the foreground, is exposed directly to the air current from the smelter, three-sixteenths of a mile away.

1315 Q. 262. There seems to be a barren hill immediately behind that, what kind of soil is that?

A. What kind of soil?

Q. 263. Yes.

A. Well, I do not believe I can quite answer that. It is not, it has been denuded, it is not well, in fact there is not enough soil there to start vegetation, but just what character of soil I do not feel competent to state.

Q. 264. Do you know whether it will produce grass at all?

A. I do not think there is any doubt about grass there, if the soil will hold it, there is grass, Bermuda Grass growing in the yard just below.

Q. 265. Is there sufficient strength in the soil to produce grass?

A. I think not.

Q. 266. Back beyond that barren hill, what appears in the picture

A. You mean in the far background?

Q. 267. Yes.

A. That I believe is Little Frog Mountain, but I am not sure as t the direction.

Q. 268. State whether or not it is covered with growth.

A. It is covered with trees, you can see faintly in the distance.

Q. 269. How far is that away?

A. I cannot tell exactly how far that is, except by the map.

Q. 270. Well, it is not necessary to be exact.

A. That must be towards Pack Mountain, not over two and on half miles, I think, yes, I am certain about that.

Q. 271. I show you photograph No. 523, explain what that repr sents and file same as Exhibit No. 38.

A. That is the house and orchard of Parker Henry about 1316 one and a half miles southeast of Isabella and in the foreground are peach trees and the dwelling. I file same as Exhibit No. 38.

Q. 272. I hand you photograph No. 524, please state what that represents and file it as Exhibit No. 39.

A. This is a view of the same house as in the last picture, that of Parker Henry, showing potatoes in the foreground, with peach trees to the side. I filed same as requested.

Q. 27-. State whether or not there was at that time grass growing on the hill immediately behind that house.

A. In the background?

Q. 274. Yes sir.

A. Yes sir.

Q. 275. I hand you photograph No. 525, please state what that represents and file same as Exhibit No. 40.

A. This is the front view of the house and orchard of John Quinn, about one and three-fourths miles southeast of Isabella, and one and one-quarter miles northwest of Copperhill. I file same as Exhibit No. 40.

Q. 276. I show you photograph No. 526, please state what that represents and file same as Exhibit No. 41.

A. That is a rear view of the same house which was shown in the last, of John Quinn, showing the cabbage and peach trees. I file same as requested.

Q. 277. I hand you photograph No. 551, please explain what that represents and file the same as Exhibit No. 42.

A. That shows the garden and house of S. E. Trentham, at the base of Pack Mountain, showing beans, potatoes, cabbage, tomatoes and beets, also Locust Trees and other forest trees about the dwelling. I file same as requested.

Q. 278. I show you photograph No. 552, please state what that represents and file same as Exhibit No. 43.

A. That is a view taken just about three hundred yards 1317 from Trentham's house looking southward from the base of Pack Mountain, up the Mountain with the landscape in the foreground showing grasses and other plants with trees in the foreground. I file same as requested.

Q. 279. I show you photograph No. 553, please explain what that represents and file same as Exhibit No. 44, to your deposition.

A. This is another view looking eastward towards Pack Mountain, the camera being set not very far from the last point, showing the same landscape of the Mountain background. I file same as requested.

Q. 280. I show you photograph No. 554, please explain what that represents and file same as Exhibit No. 45.

A. This is the house and premises of A. F. Burger, showing a view taken northwardly toward Pack Mountain. The location of the camera is noted on the label. I file same as requested.

Q. 281. I hand you photograph No. 556, please explain what that photograph represents and file same as Exhibit No. 46.

A. This is a view looking east of Pack Mountain from the residence there near the Bethlehem Schoolhouse, which is in the distance. I file same as Exhibit No. 46.

Q. 282. I show you photograph No. 558, please explain what that is and file same as Exhibit No. 47.

A. That is another view of Pack Mountain, on top of the hill in the middle foreground is Dave Bell's peach orchard. I file same a requested.

Q. 283. I show you photograph No. 559, state what that represent and file same as Exhibit No. 48.

A. That is the residence and orchard of the General Manager o the Ducktown Sulphur, Copper & Iron Co. and the location is give on the picture. I file same as requested.

Q. 284. I show you photograph No. 557, state what that represent and file same as Exhibit 49.

1318 A. That is the orchard of Martin Collins, one and one
half miles northeast of Isabella and five and one-half miles o
Copperhill. I file same as requested.

Q. 285. I show you photograph No. 561, state what that represent and file same as Exhibit No. 50.

A. That is the residence and part of the yard of the Assistan General Manager of the Ducktown Sulphur, Copper & Iron Co., th distance is noted on the label. I file same as requested.

Q. 286. I show you photograph No. 562, please state what tha refers to and file same as Exhibit No. 51.

A. This is the residence of the Engineer of the Ducktown Su phur, Copper & Iron Co., Mr. Taylor, I believe. I file same as r quested.

Q. 287. Now, state whether or not part of the vegetation whic appears in the various pictures filed by you, give any evidences o injury from smoke fumes or any other diseases.

A. Well, it would be hard to state of course, at any great distanc from the camera, but the general aspect of vegetation in these pic tures is faithfully represented by the pictures.

Q. 288. State whether or not it was your intention, or your effor on that occasion to give a faithful reproduction of the conditions a they existed in the vicinity of the furnaces.

A. I did.

Q. 289. And state whether or not these pictures were taken at point lying in such direction from the furnace that the winds woul carry the smoke or fumes, if any were emitted from the furnace over these points.

A. You mean these in the immediate vicinity of the smelters, o general.

Q. 240. All of these that you have shown here.

A. They were taken at points of various exposures, som
1319 of course, I do not know the general trend of the air current
in Ducktown, nor have I been in the fiend enough there
see, but the general effort was made to represent the vegetation as looks.

Q. 241. And do they, as a matter of fact, give a faithful reproduction of the condition there at that time?
A. I think they do.

Mr. Drake: I except to the answer on the ground that the Professor states that the does not know the course of the air currents in that country and therefore could not state anything on which to base that opinion.
Exception overruled and appeal taken.

Q. 242. Professor, have you taken photographs of forest conditions elsewhere than in the North Georgia region and around Ducktown?
A. I have.
Q. 243. For what purposes were those photographs taken?
A. For the purpose of comparing conditions with those existing in the Ducktown region.
Q. 244. When did you take your first photographs of that kind?
A. I believe the first trip was February 21st to 23d, let me see, to be sure. That is right. (Examining notes.) February 21st to 23d of this year.
Q. 245. Did you or not also take some in March?
A. Yes, sir.
Q. 246. In what general section of the country did you take those photographs?
A. I took some in the—what is known as the Cumberland Plateau region in Tennessee, and also some in Western North Carolina, along the line of the Carolina, Clinchfield & Ohio Railroad.
Q. 247. State whether or not there are any furnaces of the
1320 character of these furnaces within fifty or seventy-five miles
of the points where these photographs were taken.
A. No sir, not that I know of.
Q. 248. Do you know of any furnaces nearer than the Ducktown Furnaces?
A. No, sir.
Q. 249. I show you photograph No. 409, state what that represents and when it was taken and file it as Exhibit No. 52, to your deposition.
A. That picture was made on the 13th of March of this year near Monterey on the Cumberland Plateau, in Tennessee.
Q. 250. In what County is that?
A. I am not sure.
Q. 251. Putnam, or was it Overton?
A. No, it is,—about half way between Nashville and Knoxville on the Tennessee Central Railroad.
Q. 252. I show you photograph No. 425, explain what that represents and file it as Exhibit No. 53.
A. This photograph was gotten on the 14th of March of this year at Wilder, Tennessee, some distance north of Monterey. I file same as requested.
Q. 253. Do you know whether or not that point is in Putnam County?
A. I do not remember.

Q. 254. What is the trouble with the timber shown in that photograph?

A. There are Chestnut trees, Hemlock trees, more particularly, that are dying, very generally, in that region which shows along the skyline very clearly, a number of dead trees.

Q. 255. Did you examine it with sufficient care to form any idea about what were the diseases that they were dying of?

A. No, not at this point. I did one or two other points.

1321 Q. 256. What was the trouble with the forest in your photograph No. 409, which you have filed as Exhibit 52 to your deposition.

A. This was,—wait a minute (referring to notes)—this was a view gotten near Monterey, showing dead Chestnut trees mixed in with the other timber. The chief trouble in this immediate region was with the Chestnut. It was dying very generally, in fact th- tree threatens almost to be exterminated in the region, for instance right near this point where this picture was made I counted eighteen Chestnuts dead in one place of not over a half acre, some of them on the ground and some standing.

Q. 257. I show you photograph No. 426, state what that represents and file same as Exhibit 54.

A. That is another view taken at Wilder, Tennessee, on the Cumberland Plateau, showing the condition of the forest at that point and the down timber. I file same as requested.

Q. 258. What is the matter with the timber shown in that photograph?

A. I could not say in that immediate region, I did not stay long enough to make an investigation.

Q. 259. What varieties of timber were dying there?

A. At that point, principally Chestnut and some Hemlock.

Q. 260. I show you photograph No. 358, state what point that represents and file same as Exhibit No. 55.

A. This photograph was made February 22d, near Lansing, Tenn., a few miles north of Harriman, in the Cumberland Plateau region, and shows many dead trees, Hemlock especially. I file same as requested.

Q. 261. Did you study that timber sufficiently to know with what disease it is affected?

A. There was evidence of fire damage in part of the picture towards the background more particularly. I did not have time to
go to the top of the hill at that point, but examined others
1322 down nearer in that view and found they were not all killed
by fire.

Q. 262. I show you photograph No. 360, state what point that represents and file same as Exhibit No. 56.

A. This is a view not very far from picture 358, and shows dead Hemlocks in the background and in the central foreground a Hemlock just about dead from the attack of an insect. The bark ha been removed from this tree by birds in search of the larvæ of insects. I file same as requested.

Q. 263. I show you photograph No. 363, state where that picture was taken and file same as Exhibit No. 57.

A. This photograph was made not far from Lansing and it shows especially dead Hemlock trees in the background, especial attention is directed to two of these trees with dying tops, resembling smoke damage, to those trees in the region of the smelter fumes.

Q. 264. How far is that p-int from the furnaces?

A. Of Ducktown?

Q. 265. Yes.

A. It must be two hundred miles, I do not know, It must be one hundred and fifty.

Mr. DRAKE: Where did you say that was?

A. A few miles north of Harriman.

Q. 266. Do you know of what disease these Hemlocks were dying?

A. They were undoubtedly dying from the insects I found in these trees, I could not tell what they were.

Q. 267. I show you photograph No. 364, please state where that was taken, and file it as Exhibit No. 58.

A. This was taken a few hundred yards from the last view, 363, showing the dead and dying White Pine.

Q. 268. State whether or not you took some pictures in the Blue Ridge during the month of April of this year.

1323 A. I did.

Q. 269. Were they photographs, color photographs, or just ordinary photographs?

A. Just ordinary photographs.

Q. 270. I show you photograph No. 486, state where that was taken and file as Exhibit No. 59.

A. This picture was made about two miles from Altapass, N. C., and shows a hillside or forest with a considerable number of dead trees. I file same as requested.

Q. 271. Do you know what was the matter with those trees?

A. I do not. I can say they had not been killed by fire, they were principally Chestnuts at this point and the indications were that they died from the same cause that has caused the destruction of Chestnut timber in the Cumberland Plateau region.

Q. 272. What is the *distance* that has within the last few years attacked the Chestnuts throughout the Cumberland Plateau and the Southern Mountains generally?

A. I do not know.

Q. 273. Have you made any special study of that disease?

A. I have not.

Q. 274. Do you know whether or not it has been yet ascertained by specialists what that disease is?

A. So far as I know it has not in this immediate section.

Q. 275. Is there or not at present a special study being made by scientists?

A. There is a disease very destructive to the Chestnut over the north known as the Chestnut bark fung-us disease, but so far as known it has never reached this far south, it has done great destruction.

Q. 276. So far as you know, that is really the same disease as this?

1324 A. It is as far as I know.

Q. 277. I show you a photograph, No. 487, state where that picture was taken and file it as Exhibit No. 60.

A. This was taken about two miles from Altapass, N. C. and shows dead timber in the forest mixed with living trees at this point, there is some Oak, as well as Chestnut dead.

Q. 278. Dod you know of what disease these Oaks died, did you make any study of it at all?

A. I did not, no.

Q. 279. I show you photograph No. 488, please state where that was taken and file it as Exhibit No. 61 and explain what it illustrates.

A. I file it as requested. This was taken on the railroad towards Marion, N. C., from Altapass, showing dead timber up the mountain side, Yellow Pine, as well as—well mostly Yellow Pine, that was dead in this view, it does not show distinctly.

Q. 280. Did you make sufficient study of these Pines to form any idea as to the diseases with which they died?

A. I did not.

Q. 281. I show you photograph No. 489, where was that taken and what does it illustrate, file it as Exhibit No. 69.

A. I file it as requested. That is at another point up there, two or three miles, or several miles in the direction towards Mation, from the last, showing dead Chestnut trees in the foreground.

Q. 282. I show you photograph No. 490, where was that picture taken and what does it show and file it as Exhibit No. 63.

A. I file it as requested. It was gotten along the same railroad, about a mile further from the last, showing dead Chestnut trees particularly in the forest.

Q. 283. I show you photograph No. 492, where was that photograph taken and the point situated shown in that photograph and file same as Exhibit 64-A.

1325 A. That is in North Carolina about a mile before reaching Lynnville Falls, along the same road, showing dead trees in the forest. It does not show all that are there, but they are indicated in the picture by the lighter color of the dead trees.

Q. 284. What kind of trees?

A. These were principally Chestnut.

Q. 285. I show you photograph No. 493, where was that picture taken and what does it show, and file same as Exhibit 64-B.

A. It was about a mile north of Avery, N. C. on the same trip, and shows White Pine dead.

Q. 286. Did you study those pines with sufficient care to reach any conclusion as to what killed them?

A. I found a whole batch of these trees killed evidently by fire, but no fire in the foreground of the picture. I examined sufficiently to see that they died evidently from some natural cause.

Q. 287. I see dates on the labels of the various photographs, what does that date represent?

A. That represents the date on which they were taken.

Q. 288. How far are the points in North Carolina where these various photographs were taken from the furnaces of the Ducktown Copper Company and the Tennessee Copper Co.?

A. It must be at least two hundred and twenty-five miles, on an air line.

Q. 289. State, Professor, what was the relative condition of the forest in North Georgia south of the State line near the furnaces of the Companys and extending on down through Fannin County, and the forests on the Cumberland Plateau and around Altapass and other points in North Carolina examined by you?

A. Judging from the existence of recently dead trees, from the
standing dead timber, the condition of the forests in North
1326 Georgia is healthier than it was over these sections in many
cases. For instance, going from Johnson City to Altapass,
you go along for a few miles and the forest would be in relatively good condition, and then you would get to sections where the trees were dying on a large scale. In the Cumberland region, White Pine and the Hemlock and the Chestnut are on the whole decidedly in a worse condition than they are in the region of North Georgia where this timber occurred, where I saw them for study.

Q. 290. State whether or not there are many insects, which injure, although they may not kill the growth of trees.

A. There are, yes, you mean the number of species.

Q. 291. Yes, I mean the number of species of insects.

A. Well, there is a considerable number.

Q. 292. Do you know whether or not a very small per cent of sulphur fumes in the atmosphere would have a deleterious or beneficial effect upon the growth of vegetation in the forest?

A. Well, it depends, of course, upon the condition surrounding the forest trees. In general, the effect of sulphur fumes should be injurious.

Q. 293. Suppose there was a very slight per cent of sulphur fumes in the atmosphere. Would that be injurious?

A. Well, that would be in the category with the action of poisons in general, you reach the point of dilution where there is no injury, and then by increasing the dose there may be a chronic injury, or acute injury.

Q. 294. The extent of the injury, of course, depends upon the amount in the atmosphere?

A. And other conditions surrounding the forest.

Q. 295. Well, it is or not a fact that fruit trees and sometimes vegetables are sprayed with poisonous substances that are poisonous to the vegetable life, in order to kill insects?

A. Yes.

Q. 296. In such cases, I suppose caution must be exercised
1327 to dilute it to a point where it will not injure the vegetable.
A. Yes sir, it frequently occurs that spray mixtures are injurious to the foliage of the plant, but the average effect to the plant is beneficial.

Q. 297. Do you know with what substances they are accustomed to spray fruit trees?

A. They are sprayed with several different mixtures, especially lime and sulphur mixtures for certain fung-us diseases and certain insects, among which one is known popularly as Bordeaux mixture for the control of fung-us diseases.

Q. 298. Are, or not, all of these mixtures poisonous to vegetable life unless they are very much diluted?

A. Well it will depend on how they are introduced, in the case of Bordeaux mixture, for instance, copper is one of the most deadly poisons to the plant life. It is put on the leaf in the Bordeaux form in a precipitated mixture, because wherever some quantity of it can get through the leaf, the plant will die, but if it is introduced in connection with other substances, it is beneficial. If introduced in its pure state, it would simply poison it. For instance, in my experiments, I have known one part of copper to twenty million parts of water introduced through the root, to kill an apple plant in twenty-four hours. On the other hand the same amount with Bordeaux Mixture without great injury to the foliage would do considerable benefit in controlling certain diseases of the plant.

Q. 299. Professor, I wish you would describe the different parts of a tree, I mean those parts of a tree which perform functions in producing its growth.

A. Well, there are certain conditions that a tree must be placed in to live. I should say that the chief factors controlling the life of the tree in normal condition are a plentiful water supply and access to light, because it takes up the water through the roots from the soil and the water passes up through the trunks of the
1328 trees and on to the branches and escapes from the breathing
pores in the leaf; and the leaves must be exposed to the air and sunshine in order to manufacture the food that the plant depends upon for growth and for the exercise of its vital functions.

Q. 300. In the first place, what are the particular functions that the roots of the tree perform?

A. It is mechanical functions of anchoring the tree to the soil, of absorption of water and mineral ingredients from the soil.

Q. 301. What are those mineral ingredients that are taken up by the root?

A. The essential ingredients are nitrogen, sulphur phosphate, potash, lime, magnesia and iron.

Q. 302. Now, do all those elements you have mentioned enter into the growth of the tree and become a part of the tree?

A. They are necessary for the life of the tree. They may not, and do not become a part of its skeleton in its living state, but they are necessary for the life and growth of the tree.

Q. 303. How is the moisture and other elements that you have mentioned carried up through the roots?

A. It enters the root by osmosis, or diffusion, and is carried up then to the larger vessels of the tree and distributed to the leaves, escaping from the leaves above. The ascent of sap in trees, that is, the movement of this water and other ingredients from the roots on up to the leaves has never been satisfactorily explained so far as I know.

Q. 304. I suppose it is the result of something like capillary attraction.

A. Well, capillary attraction does not account for it. It helps but very little.

Q. 305. At any rate, it enters at the bottom, at the roots and goes on up to the leaves.

1329 A. Yes, the leaves absorb very little moisture, not enough to enter into the life of the tree.

Q. 306. What function does the sap of the tree perform?

A. That sap of the tree, serves as a medium for bearing the ingredients from the roots on up into the tree, to the place where they are needed and also supplies the minerals of course, that are included among those ingredients, and it enters largely, chemically into the composition of the protoplasm of the tree, the living substance and also serves,—well this covers the case.

Q. 307. Now, do the ingredients which you have mentioned and the moisture pass up the tree through the sap, or through the older part of the tree.

A. You mean the sap wood?

Q. 308. Yes.

A. Yes, it travels through the sap wood, principally.

Q. 309. Does that portion of the tree which lies inside of the sap wood perform any function in the subsequent growth?

A. No, sir.

Q. 310. It is just a stem that holds the tree there?

A. Yes, sir.

Q. 311. And all the subsequent growth forms around that.

A. Yes, sir, as a matter of fact, the tree may be hollow and perform all of its functions for many years, the heart wood being dead and useless to the tree.

Q. 312. So the heart of the tree, instead of being its life, or rather the organ that keeps it alive, really has no effect on its growth?

A. That is right.

Mr. Drake: We except to this class of evidence as being rather foreign to the issue.

Exception overruled and appeal taken.

Q. 313. State, Mr. Bain, what function, if any, the bark 1330 of a tree performs?

A. Well, the bark of a tree, contains the tissue that is principally concerned with the transmission of the ingredients from the branches to the roots, for instance, in the potato, the starch is manufactured in the leaves and has to travel downward in the form of sap to the tubers under ground and the water is elevated up through the wood while the movement downward is through the bark, so of course there is a counter movement.

Q. 314. And then, part of the ingredients are moving down through the bark of the tree?

A. Yes, sir.

Q. 315. What is that?

A. Well, it is carbohydrates, manufactured by the leaves that move down and supply material in the formation of growing roots under ground.

Q. 316. Now, please explain fully just what the functions the leaves of the tree perform.

A. Their most important function is manufacturing of food substances, that is, the working over of the mineral elements, that is, the chemical elements of the air, such as carbon dioxide gas and water, working them over into the food for the tree. This is done by the green coloring matter in the leaves, the chlorophyll, we call it.

Q. 317. Do they take in any ingredients, or is that all brought up from the roots?

A. It is brought up from the roots.

Q. 318. Then, how is the growth formed around the tree?

A. Around the tree there are cells just at the line of junction between the bark and the wood, known to the botanist as the Cambium, and it is in this narrow zone, or cylinder, that the growth occur-ed, the wood being there united with the tree and each year forms a new layer, making the bark on the outside and the wood on the inside.

1331 Q. 319. From which source is the material which enters into the growth principally drawn, down through the leaves, or up through the roots?

A. From the leaves.

Q. 320. About what per cent of it is drawn through the leaves.

A. Well, it amounts to the greater part of the dry weight of the wood, for instance, if you burn a log, it takes several men to carry it, but the ashes left behind a child could carry off, the ashes left are just the mineral that came from the soil, and even that contains a little that came from the air.

Q. 321. And is all the remainder that goes off in smoke and vapor obtained from the atmosphere.

A. Yes, sir.

Q. 322. And through the leaves?

A. Yes, sir, that is the principal part that enters of course into the manufacture of starch. Water enters into it from the roots, that is a part of the compound. The dry matter is composed of water and air made into food.

Q. 323. During what seasons does the tree grow principally?

A. It grows during the Spring and Summer.

Q. 324. Is there any difference in the appearance of the Spring and Summer growth?

A. There is, that is, the Spring and Autumn growth.

Q. 325. Please explain the difference.

A. In the Spring the trees lays down larger and thinner walled cells and in the Autumn they become generally smaller, with much thicker walls.

Q. 326. In which of these seasons occurs the most growth, the Spring or Winter?

A. Well from early April, its growth in diameter would be greater during the first half of the season, than the last.

1332 & 1333 Q. 327. Is there any special difference in the character of wood that is made during the spring from that made during the Fall?

A. Yes, sir.

Q. 328. What is the difference?

A. As I explained awhile ago, the cells composing the wood have thinner walls in the spring and thicker walls in the autumn.

Q. 329. State whether or not there is any growth in the late fall and winter season at all.

A. There is none, after the leaves begin to fall and none during the winter.

Q. 330. If all the leaves on the tree should be blighted in the summer season, would there by any further growth after such happened to the tree?

A. There would be some growth, until the tree had exhausted its ingredients stored up. It has a little supply of starch, for instance, on which it would grow until that was used up, and then stop until it would put on more leaves.

Q. 331. State whether or not the tree itself shows the amount of growth of each successive year.

A. It does.

Q. 332. Now, in what way does it show that?

A. It shows that in the form of annual rings, that mark the line of union between the spring,—I mean between the autumn of the previous year and the spring of the present year.

Q. 333. Can one tell exactly the number of years that a tree has been growing?

A. Generally speaking, that is, trees in this section of the country, in tropical regions where the conditions are practically uniform sometimes no rings form.

Q. 334. Is or not that fixed by the difference between the spring growth and the autumn growth?

A. Yes, sir.

1334 Q. 335. That is, the spring growth starting on the previous autumn growth?

A. Yes sir.

Q. 336. Now, how is it, Professor, that sulphur fumes injure the tree and the progress of the growth of the tree?

A. It is through the leaves, by interfering with the normal functions of manufacturing food, either killing them, or impairing their functions.

Q. 336. May, or not, poisons of that kind stunt the growth of a tree very much and yet not kill it?

A. Yes sir.

Q. 337. Suppose, that a tree has been stunted in its growth for three or four or five years, or any number of successive years, and that cause is suddenly removed, how long would it take to recover its normal growth?

A. I have no means of knowing exactly, for nobody has ever investigated the matter. I have never been able to find out, but the opinions are that it might require some time for the tree to recover fully.

Q. 338. Have you given the matter sufficient thought to advance scientifically your views upon the subject?

A. Well, it is known that sulphur fumes retard the growth of a tree, both in the diameter of its trunk and in the length of its branches. That is, it retards both the growth in thickness and the growth in length. It stunts the growth of the branches and it is at least probable that that stunted growth of the branches would retard the beneficial effects of the removal of the smoke, for that reason it has not so many branches on it and when the leaves begin to put out again, it will put out new growth and gradually recover from the injury.

Q. 339. Then, it may take it several years to recover its natural condition.

1335 A. It may, of course, that is my own explanation of the matter. I know, however, the facts to be as I have stated in reaching the conclusion.

Q. 340. Is or not a tree in that respect somewhat similar to a human being when he is recovering from the effects of a disease?

A. Yes sir.

Q. 341. Now, you have stated, Professor Bain, that you took some blocks from trees during your visit there last fall, I believe you took some blocks of wood from those trees.

A. I did not take many blocks, last fall, when I investigated the Vestal property in North Georgia. We cut a few trees, and everywhere I could find a freshly cut stump, I made observations and watched out for this over the entire district every time I traveled it.

Q. 342. Did you take and have you a few samples of that kind?

A. Yes sir, I have a few.

Q. 343. How many stumps, or blocks, did you examine at that time, last fall?

A. I estimate that I examined and took sections from around two hundred trees.

Q. 344. I wish you would state what you observed from those examinations with reference to the growth of those trees.

A. Well, I found that with the facts that were given me as to the smoke history of the Ducktown region, that the method of determining the injury by examining for growth checks in the rings, of wood, that I could tell with a very great degree of certainty whether smoke had killed timber in a definite region and if so, when the smoke first struck that region.

Q. 345. I wish you would first state what those sections and stumps you examined showed with reference to the time when the

growth of timber in that section was arrested and when it,
1336 the growth, was resumed.

A. Over most of this region, in fact, all around the Ducktown basin, and even up on the foothills around the edge of the basin, I mean up on the mountain ranges, I found that by far the greater injury from smoke occurred subsequently to 1905, that is, the growth check began, for the most part in 1906 or 1907 and in some other cases they began in 1901 and 1902, both of them.

Q. 346. In 1901?

A. A very few of them began in 1894.

Q. 347. Those that began in 1894, how long did they last?

A. Some specimens show growth checks from 1894 to 1898, with improved growth for two or three years until 1901 and then much greater checks.

Q. 348. Now, was that the condition that you observed in North Georgia?

A. Yes, That was practically the same in North Georgia. I found only a very few trees near the Tennessee line that showed any check of their growth before 1901, as far back as 1894.

Q. 349. Did you find any trees, if so, how many, that showed a checked growth before 1894?

A. I do not remember to have found a single one on any of my trips to Georgia that began in 1891, with one or two possible exceptions. No, not a single one. I do not find any record of any. I was under the impression that I had found one or two possibly near the Tennessee line, but I do not find it, out of the larger number examined.

Q. 350. Well, will not any disease check the growth of the tree?

A. Yes sir, any unfavorable condition will check the growth of the tree. I have found that growth checks result from fires burning off the forest floor, and the consequent suffering of the tree for water, may cause growth checks, and of course, any kind of
1337 chronic disease to the tree will check its growth by interfering with its normal functions and then I have seen evidences that building a road through a forest packing the ground around the roots of a tree will affect its growth. I have found it even possible in some instances to tell when a road is built through a forest and tell that by the growth check.

Q. 351. Then, out of the two hundred or more samples you examined, there were only one or two indications that growth had been checked before 1894, would that be any evidence that that check resulted from sulphur fumes?

A. I think not.

Q. 352. I believe you said the indications were that the growth was probably check- after 1905.

A. Yes, it began with the growing season of 1906.

Q. 353. Did that check continue on up to the present date?

A. In the majority of instances the check showed in the seasons of 1912 and 1913 that the conditions were improved, in those examined in the North Georgia section. I have gone over that material carefully for information in this case.

Q. 354. What percent of those trees showed improvement in those years?

A. I tabulated the results here, of the fifty-four cores that Mr. Haenseler got under my instruction last week.

Q. 355. I am asking now as to those you sampled last fall, what per cent of those trees showed improvement of growth in 1912 and 1913?

A. I have not tabulated that. I have quite a number of instances in which they did show improved growth.

Q. 356. State whether or not you have some of those,——

The WITNESS: If that question is important, I can run that up tonight.

Q. 357. I will ask you to state whether or not this method of
determining the amount of growth of trees, and when the
1338 growth of trees was check-, is one that is well known to scientists.

A. Yes sir.

Q. 358. Can you name any scientists by which it is well recognized?

A. It is recognized by a number of the German students of smoke injury, and one of the standard publications is Haselhoffand Lindau, on injury to vegetation by smoke, Handbook for the Recognition and Detection of Smoke Injuries, published in Leipzig in 1905.

Q. 359. State whether or not you are familiar with the German language.

A. I read it.

Q. 360. Do you read it continually?

A. I do.

Q. 361. State whether or not you have read a number of German works in studying this.

A. I have read a number, and read through the books I have referred to.

Q. 362. Have you a photograph taken from a portion of that book, showing how to determine this particular method of determining that growth of trees?

A. I have.

Q. 363. If you have, please file same as Exhibit No. 65.

A. I do so.

Q. 364. Now, Professor, have you present a number of sections that you either took from the tree or had taken while making this investigation?

A. I have.

Q. 365. Professor, please describe that picture from the book you have mentioned (Exhibit No. 65).

A. This is a copy of Page 106 of the work referred to and is
reliable. The illustration shows in figure 8 at A a section of a
1339 Spruce tree, at Grevenbruck, the result of smoke injury beginning from 1885. The picture at A is 33 years old. I mean
is of a tree 33 years old, and Figure B is a healthy tree of the same species 26 years old. The annual rings show the date when the

smoke struck the tree, Figure A, and also compares the healthy growth of a tree in Figure B, which is 26 years old.

Q. 366. I show you section No. 141, please state what kind of tree that was taken from, where the tree stood when you obtained it and have it marked as Exhibit No. 66.

A. I mark same as requested. 141 is section from a White Pine tree which I secured on the 20th day of last October on the road from Copperhill to Tumbling Creek, which I referred to this morning and its exact location I believe I will have to depend upon Mr. Reese to give, but I think it it about a mile from Tumbling Creek.

Q. 367. How far was that from the furnaces of the Ducktown Company or the Tennessee Company?

A. I cannot tell exactly, I will have to depend upon Mr. Reese to give that.

Q. 368. Professor, state what that block shows with reference to the growth of the tree.

A. That shows a uniform, normal and healthy growth up to 1906, with a slight check in the growth and thickness of the rings during the season of 1906, and then a decidedly distinct check from 1907 to 1911 inclusive, then, in 1912 and 1913, it shows improvement in growth. I have also a color photograph illustrating the locality from which this tree was taken.

Q. 369. I hand you photograph No. 120, is that the photograph to which you refer?

A. That is.

Q. 370. If so, file it as Exhibit No. 67.

A. I do so.

Q. 371. How near normal was the growth of that tree in
1340 1912 and 1913?

A. (Examining sections of tree, Exhibit No. 66.) Well, probably on an average, not quite half.

Q. 372. Do you know whether or not the fact that is was not a full growth was because it had not fully recovered from the previous effects?

A. It had, so far as its leaves were concerned, every appearance of being in a healthy condition.

Q. 373. And was there any outward sign that there had been any injury to that tree during the year 1913?

A. None that I could see.

Q. 374. Was there any evidence that the foliage of the tree had been injured in the least?

A. No sir.

Q. 375. Of course you did not see it during the year 1912.

A. No.

Q. 376. And you could not testify as to that?

A. No.

Q. 377. How often does the Pine Tree shed its foliage?

A. A leaf puts out in the Spring and stays on two full seasons, generally, sometimes it will stay on a young tree longer. The tree is too young, and of course the leaf growth stays on that long.

Q. 378. Was there any evidence of the foliage on that tree being injured at any time since it had put out.

A. There was none at that time.

Q. 379. State whether or not the rings on a tree become less the older it becomes, and the larger the tree.

A. Well, that is true, with this exception, a very young tree which starts out with comparatively small rings and then increases in size for a certain period, usually a short time, then it reaches a maximum and then as it gets older, the average growth slightly drops down.

1341 Q. 380. Take a Pine tree or Oak tree, when will it reach its maximum ring growth.

A. That will be so variable under different conditions that i will be impossible, I think, to make a statement.

Q. 381. Could you state, by looking at the section you have filed as Exhibit, whether or not that reached its maximum growth before 1906?

A. I could not.

Q. 382. I show you a block which is numbered 225, from what kind of a tree was that taken, and what point, and state what the rings in that tree show.

A. This was taken from a Spanish Oak tree, near Hothouse Creek Georgia, and about half a mile east of Hothouse creek that was gotten on the 24th day of January of this year.

Q. 385. What does this show with reference to the growth of th tree?

A. That shows a very remarkable and distinct growth check, beginning with 1906 and continuing to and including 1911, and th growth of 1912 and 1913 are almost normal, that shows better o the face of the cut, here, than it will on the cross section.

Q. 384. Can you state how far that was from the furnace?

A. I do not believe I could, but Mr. Reese can do that.

Q. 385. I show you a block numbered 65, state from what kind of a tree this was taken, where the tree stood and what it shows wit reference to its growth and file same as Exhibit No. 69.

A. I collected that specimen on the 4th of last October, from freshly cut Beech stump, on the bank of the Toccoa River, I think it was approximately two miles from Copperhill. You had better get Mr. Reese to state that.

1342 Q. 386. What does this show with reference to growth?

A. That shows no growth check until 1902, and a still further reduction in growth from 1906 to 1911, inclusive and th growth of 1912 and 1913 is almost, if not quite, normal.

Q. 387. I show you block number 112, what kind of tree wa that taken from and what was it intended to illustrate, and where was it obtained, and file it as Exhibit 70.

A. This is on the ridge toward No. 20 Mine, you will have to depend on Mr. Reese to get the distance. That is an Oak Tree, showing a slight check in 1906, a remarkable check beginning with 1907 showing a decided improvement in 1912 and 1913.

Q. 388. I show you a block numbered 130, state where that w taken from and what you know, if it illustrates anything and file same as Exhibit No. 71.

A. 130 was collected on the 13th of October, right at the point where Tumbling Creek crosses the Tennessee Georgia line, and was gotten to show the effect of fire on the growth of trees in the year following, and also to show the possibility of determining the date, approximately, of the occurrence of the fire, and also the direction from which the wind was blowing, the fire scald being on the portion to the windward side of the tree. That shows the fire to have occurred before the growth of 1910 began and after the ring of 1909 was completed, so it was done approximately between October 1909 and April 1910. The annual ring of the year 1910 shows a very perceptible reduction, as a result of the fire. There were other trees standing nearby which showed fire scald. One I remember, a pine, showed, a reduction of growth during the same year, though no fire scald. I wanted a sample to show the effects of fire on tree growth as one of the deleterious influences, and possibilities of determining the dates of fires.

Q. 389. What does the block show as to the extent of growth during the year- 1912 and 1913?

1343 A. That growth is on an average, well, for 1911, 1912 and 1913, about the same.

Q. 390. Do you think it is normal?

A. Well, they are hardly normal, no, it would be pretty hard to draw a conclusion along that line, from that young a tree, because it has not grown long enough to establish a uniform normal growth.

Q. 391. State whether or not they are something near as large as those up to the time the fire struck it?

A. Well, on an average, better perhaps, than the two years preceding the fire, decidedly better than the three years preceding the fire.

Q. 392. What year was that, the third year preceding the fire?

A. That is the growth of,—they are decidedly better than the growth of 1907.

Q. 393. I show you block number 121, please state from what kind of a tree that was taken, the locality in which the tree was found and what it shows with reference to growth and file the same as Exhibit No. 72.

A. This is a second tree from that group where my number 120 was taken, and where that color photograph was taken, showing remarkable growth check beginning with 1906, with some improvement in 1912, and 1913 over previous two years.

That also illustrates the reliability of this method of determining the date when smoke struck the region, and whether the smoke had struck it afterwards in the history of smoke production. Where this photograph, my No. 120, was taken, a number of dead pines from the roadside had the appearance of having been killed by fire, but I found upon examination that they had not been killed by fire. The first tree from which I took a chip established growth checks, beginning about 1906 and 1907, so if the smoke killed these trees, they were killed as the effect of the application not earlier than 1906.

1344 Mr. **Drake**: Note an exception for the reason that the answer is argumentative and no facts stated on which to base such a conclusion. Exception overruled and appeal taken.

Q. 394. State whether or not you have also made some bores into a number of trees in North Georgia with the same object in view.

A. I made a number.

Q. 395. When did you do that?

A. I made some on the 23rd day of January of this year, some on the 24th of January of this year, I have an impression that there was another trip.

Q. 396. Do you remember how many cores you took?

A. I cannot state exactly, a considerable number.

Q. 397. Just give us a guess of your best judgment.

A. I can give it approximately. 28, I believe it is on that trip and I believe about 28.

Q. 398. State what those cores show, with reference to the growth of trees.

A. I believe I answered that question in a former one.

Q. 399. Did your answer include both the cores and the sections cut from the trees?

A. Yes sir.

Q. 400. Did the cores and the sections correspond in that respect

A. Generally, well in fact always when the cores were taken at o near the point where the section was, a core might possibly vary little but. But, even when taken from different parts of a tree, I wa always careful to select a portion of a tree that showed normal growth contour on the surface and to get the natural condition. The advantage of the borer is that you can get cores from a larg 1345 number of trees without injury to the trees and you have better view of the average condition over the region.

Q. 401. Is that a device manufactured for that express purpose of taking cores from trees for the purpose of determining the interna condition of the tree?

A. It is, for sampling timber and for similar purposes.

Q. 402. State whether or not you have recently sent into that section of the country your assistant Mr. Haenseler, for the purpose of taking other cores?

A. I did.

Q. 403. When was that done?

A. I believe he left Knoxville last Tuesday, and was in the field Wednesday of last week.

Q. 404. Did he on his return, deliver to you cores which he had taken from trees.

A. He did.

Q. 405. Of ocurse you do not know where they were located excep what he has told you.

A. No sir.

Q. 406. Who numbered those cores, you or he.

A. Mr. Haenseler.

Q. 407. Did he then turn them over to you?

A. He did.

Q. 408. Have you made an examination of all the cores Mr. Haenseler delivered to you?

A. I have.

Q. 409. I wish you would state what those cores show with reference to the growth of those particular trees.

A. I have examined those cores with particular reference to the existence of growth check in recent years, and especially to determine whether in the recent years there has been shown any im-
1346 provement in growth, after having been checked in previous years.

Mr. DRAKE: We except to the answer because the cores have not been sufficiently identified as having come from this smoke affected district. Exception overruled and appeal taken.

Q. 410. What did you ascertain?

A. I went carefully over these, there were fifty-four in number, and there were twelve out of the 54 that showed no growth checks whatever. Thirteen of the cores did not show the annual rings definitely enough to determine their growth, without making a microscopic section, but those thirteen were for the main part poplars and Maples and other trees that are quite resistant to smoke injury. Out of the remaining twenty-nine, there were five that showed no improvement in recent years. There were eighteen of them that showed distinct improvements during the years 1912 and 1913. There was one which showed decided improvement in 1913 and also had grown enough during the current season, 1914, to be able to state definitely that the growth of this current year was an improvement. There were three that showed improvement for the last three years, that is, 1911, 1912 and 1913, and there were two that showed improvement during the years 1910, 1911, 1912 and 1913.

Q. 411. Professor, this morning Mr. Haenseler filed two of those cores as Exhibits 1 and 2 to his deposition, did you recognize those as being two of the cores of which you made an examination?

A. I do.

Q. 412. What do these cores show, Professor?

A. His Exhibit No. 2 shows a check from 1901; 1911, 1912 and 1913 shows steadily improved growth. His Exhibit No. 1 shows a very distinct check from 1907 to 1911, 1912 and 1913, are about normal. Also I made a section of this sample and photographed it.

1347 Q. 413. State how many of these section- were given *were given* you by Mr. Haenseler, show growth checks as far back as 1901.

A. Only one, I believe. There is one check long previous to 1891. There is one possible check in 1892, a very doubtful one, not sufficiently marked to be certain about it. And that is all as far back as 1891.

The hour growing late, an adjournment was taken in the further hearing of this deposition until 9:30 o'clock A. M. on the morning of Tuesday, June 23rd, 1914, at the same place.

1348 (Pursuant to adjournment the further taking of depositions in this cause was resumed at 2:00 o'clock P. M. on this the 23rd day of June, 1914, in the presence of the same parties and at the same place as heretofore mentioned.)

The said S. M. Bain, being recalled for further examination, deposed as follows:

Direct examination.

By J. A. Fowler, Esq.:

(The last questions and answers of Prof. Bain on direct examination upon yesterday were then read to the witness.)

Q. 1. You will notice Prof. that in a previous question I referred to the year 1901 while you and your answer apparently refer to the year 1891. If you have made a more careful study of the specimens furnished you by Mr. Haenseler since the adjournment of your deposition on yesterday, I wish you would state what the result of that study is?

A. You mean the tabulated results, the whole thing.

Q. 2. Yes, state what you have learned about those specimens?

A. There is a slight correction in the figure given as to the percentage or rather the number of improvements shown, and I can give them if you wish, the tabulated results.

Q. 3. State the tabulated results?

A. Out of the 54 cores handed to me by Mr. Haenseler there were fifteen that showed no checks. There were twelve principally of yellow poplar and maple that are very resistant to sulphur fumes in which the rings were two indefinite to read without a miscroscopic section. There were seven out of the fifty four
1349 that had been checked and showed no improvement within the last few years. Of this number that showed no check in the growth, that is none that could be directly considered as indicating smoke injury, but yet showing improved growth during 1912 and 1913, there were three. Of these three there was one that showed improvement in 1913 and 1914, that is during the current season the growth had proceeded far enough to show that it would be an improvement over the previous years. There were thirteen showing improvement during 1912 and 1913. There were five that showed improvement for the three years, 1911, 1912 and 1913. There were two that showed improvement during the year 1910, 1911, 1912 and 1913. I have also tabulated the dates when these growth checks began. There was one that was checked long prior to 1891. There was one which very doubtfully showed a check beginning 1892, there was one that showed somewhat of a check in 1893. There were two whose checks doubtfully began in 1894, one which certainly began in 1894. Another that doubtfully began in 1895, one began in 1899. Two began in 1901; five began in 1902; one began in 1904; two began in 1906; two began at an uncertain date, but more marked in 1906; one began in 1907; one in 1908; two in 1909; and three at an uncertain date.

Q. 4. Professor, state whether or not you have photographed a part of one of the cores given you by Mr. Haenseler and have enlarged that photograph?

A. I have.

Q. 5. When did you do that work?

A. I made ths section on last Saturday and made the photograph on Sunday.

Q. 6. Has the core which you photographed been exhibited?

A. It has.

1350 Q. 7. What exhibit is it?

A. It is exhibited to Mr. Haenseler's deposition as No. 1.

Q. 9. What part of the core was photographed?

A. From the study of the core, it is evident that the end next to the bark had been cut off in order to fix it in the microtome for sectioning it. There is not enough of the picture to show more than the growth from 1905 to 1914 as for as it had grown. I do not believe that the microtone shows all of that section, but far enough to indicate,——

Q. 9. Have you the enlarged photograph present?

A. I have.

Q. 10. Will you please file the same as Exhibit No. 73 to your deposition?

A. I do.

Q. 11. Please take this photograph and explain what it shows?

A. The enlargement was made from a thin microscopic section covering the period stated, and is magnified to about 160 diameters. The picture had to be made in two parts. The ends showing the beveled cut with the arrows indicated near the date 1912, shows how the picture is to be put together, to show continuously the section from the beginning on the right to the growth of the year 1905 on the left. This picture shows on the extreme left, at the lower left hand corner, a portion of the cells of the autumn wood of the season of 1905. Then proceeding to the right over the place marked 1906 are represented in the section the cells that were formed on this tree during that season to this point. *As represented in the section the cells that were formed on that tree at that season during this point.* The cells of the spring wood are definitely shown in the section, the walls being marked by their thin-
1351 ness, the open spaces, known as the lumina of the cells are considerably larger than in the autumn wood. Notice from the growth of the spring wood at the end of 1905, which is marked at the bottom of the picture, the cells gradually diminish in size and the walls increase in thickness up to the end of the season's growth, as indicated by the marks shown 1906 and 1907 at the top of the picture. In this autumn wood during this year, are shown the sections of two resin ducts, into which the resin is discharged from the secreting cells around. Then we next come proceeding to the right, to the section showing the growth during the year 1907. Here is shown a very decided reduction in growth, considerably less than half the progress being made that was made in the previous year, 1906. During 1907 is shown a portion of a resin

duct at the bottom of the picture. During 1908 the thickness of the annual ring is still more reduced than in 1907, and another resin duct is shown in section. During 1909 the growth is still very much reduced, though not quite so much so as 1908. A portion of a resin duct shown at the upper portion of this year. The growth has been more but not nearly the normal growth has been established as shown by the growth of 1906. One resin duct is shown in the section during the growth of 1910. During 1911 there is still some further increase in the rate of growth. There are here shown sections of one resin duct complete, and a portion of another at the bottom of the picture. During 1912, the tree has grown fully as much as it did during the season of 1906, and its grown has evidently become normal as indicated by this section. At the lower portion of the growth of 1912, is shown a portion of another resin duct. During 1913 the growth is still about normal, and the resin duct is shown toward the bottom of the right hand corner of the year. The section shows very distinctly the point where the
bark is reached, which is indicated by the mark at the top
1352 of the picture. At the lower portion of the picture is shown
an inscription marked cambium. This is the region where the tree grows, new cells are constantly formed during the growing season, making bark on the outside and wood on the inside. It is shown in this picture that the growth of this tree during 1914 had already exceeded in diameter the growth for the year 1909, though as shown by the picture the autumn wood has not yet begun to be formed.

Q. 12. Does that or not indicate that the growth for the present season is at present normal?

A. As compared with the spring wood of 1913, the spring wood of 1914 is, in this specimen, already more. It is apparently fully as much as was formed during the season of 1912.

Q. 13. You spoke of resin duct-, what are their functions?

A. The function is to secrete the reson, the resin that is manufactured in the cells of the trees, which is poured through the walls of the cells around these open cavities and that is where the resin in this kind of tree accumulates.

Q. 14. What in this photograph represents the cells of the trees?

A. The cell is really constructed like a box, that is, it has walls with an open space on the inside. The walls of these cells are shown, of course, here in section just as though you would saw off one side of a box, and leave it open and look at the open end of the box. If the box were made of thick lumber, it would show distinctly on looking at the side of the box that it was, if it was of very thin lumber, of course the box would show that, the lumber being shown by the sawed section. The section of the wood cell is entirely an-
alogous to the construction of the box, except the wood in
1353 these boxes is sawed open so as to have an open face in the
walls representing the open end. The walls of the cells are the solid material of the wood surrounding the open space.

Q. 15. I show you photograph No. 3, will you please state where that was taken, what it represents and file as Exhibit No. 74?

A. It was taken in Lot No. 176 on Bear Branch in Georgia. Mr. Reese can verify the locality; it was taken on the 16th of September, 1913. It shows the condition of timber at that point, the healthy appearance of the foliage, with some dead hemlock intermixed. The dead hemlock showed five scalds about the base and were probably destroyed by fire.

Q. 16. I show you your photograph No. 7, please state where that was taken, what it represents and file it as Exhibit No. 75.

A. This was made on the 16th of September, 1913, and was located at the Ford on Jack River in Georgia, Lot 148, the locality being given me by Mr. Reese.

Q. 17. Is there any dead trees represented in that photograph?

A. There are fire killed hemlock in the right foreground, but the hemlocks intermixed with the other timber are shown by their foliage to be in a healthy condition.

Q. 18. How long did those hemlocks appear to have been killed.

A. I made no observation as to the date.

Q. 19. I show you photograph No. 24, please state where that was taken, what it represents and file it as Exhibit No. 76.

A. This is a photograph on the 17th of September 1913, showing the home and surroundings of one McJunkins, a grove
1354 of healthy hemlock about the house. There is one dead one
in the view which Mr. Reese says has been girdled, I forgot to examine it myself.

Mr. **Drake**: We except to the answer so far as it includes what Mr. Reese testified.

Q. 20. I show you photograph No. 31, please state where that was taken, what it represents and file it as Exhibit No. 77.

A. I am not competent to state.

Q. 21. Were you not along when the photographs were taken?

A. I made the photograph, but I do not know the exact locality.

Q. 22. I wish you would state the locality?

A. Of course, it is with the understanding that the locations are given by Mr. Reese.

Q. 23. As I understand you were present and made the photograph?

A. I made the exposure and developed the picture.

Q. 24. As to the locality you learned from inquiry?

A. Yes sir.

Mr. **Drake**: We will note a general exception to all the answers regarding the pictures insofar as the statements of the localities at which they were made, as Prof. Bain says these localities were given him by other-.

Witness: This statement applies only to the,—This photograph was made on the 19th of September, 1913, it shows a general condition of timber on a mountain side made some thirty or forty feet up a chestnut where I climbed to place the camera. It was made from Lot 104 overlooking Lot- 103, 101, 100, 79, 80, 81. The

space covered in this view was about a mile and a half long,
1355 the length being from left to right in the picture.

Q. 25. I show you photograph No. 47, please state where that was taken, what it represents and file it as Exhibit No. 78.

A. My picture No. 47 is a photograph gotten of a white *white* pine tree on the left of the road showing the appearance of the tree as a result of the leaf tip injury that was referred to in some of the answers on yesterday. This, as I verify myself, is on the road between Eton and Ellijay, Georgia, and about a half mile within the Murray County line, as indicated by the sign board on the side of the road.

Q. 26. I hand you photograph No. 61, please state where that was taken, what it represents and file it as Exhibit No. 79.

A. This is a view of the house, orchard and premises of Martin Collins, showing Pack Mountain in the background, made on the 3rd of October, 1913. This is the east half of the southeast quarter section, 35 Fractional Township, Range 5 east of Polk County, Tennessee.

Q. 27. I hand you photograph No. 68, please state where that was taken and what section of the country that represents and file it as Exhibit No. 80.

A. No. 68 shows an apple tree on the premises of John Williams within Georgia, three miles by road from Copperhill and I took myself, the compass bearing from this point to the high stack of the Tennessee Copper Company which read North 42 degrees west.

Q. 28. I hand you photograph No. 70, state where that was taken from and what it represents and file same as Exhibit No. 81.

1356 A. This is another photograph made on the 18th of October, 1913, showing Williams' house from another point of view and a general landscape surrounding and the condition of vegetation.

Q. 29. I show you photograph 74, please state what that represents and file it as Exhibit No. 82.

A. This was made on the fifth of October, 1913, and shows a ripened crop of corn, and apple trees in normal condition for that time of the year on the farm of Will Harper, about seven and one half miles from Ducktown, I noticed the point there myself, passed the eight mile post along the road about a half mile back.

Q. 30. I hand you photograph No. 79, please state what that represents and file same as Exhibit No. 83?

A. That is a photograph made of the orchard of John Quinn, taken on the 6th of October, 1913, showing peaches about ripe, the condition of the crops, with Mr. Reese standing within the foliage of the trees.

Q. 31. I show you photograph No. 80, please state what that represents and file same as Exhibit No. 84?

A. That is another photograph which I made on the 6th of October, 1913, of the Quinn orchard, house and premises showing the condition of flowers and peach trees at that season, with some younger trees apparently about a year old in the foreground, the other one toward the back ground.

Q. 32. Have you one or two photographs at home which were taken about the same time and which were taken of different points in that same locality in Georgia.

A. I have some taken in Georgia which I overlooked yesterday.

Q. 33. How many are there?

A. I have two.

Q. 34. Please state what their numbers are and what
1357 points they were taken from?

A. Two that were made on the 25th of March, on the property of Harper, my numbers 476 and 477.

Q. 35. What do they show?

A. They show a hardwood forest badly fire scalded and in this forest was a considerable number of dead trees evidently killed by fire and in my number 476 is shown a white pine tree in normal condition, normal state of health. 477 shows fire scalded oak nearby.

Mr. Drake: We except to the question and answer as to the photographs, they being the best evidence.

Exception overruled and appeal taken.

Q. 36. Will you please hand these two photographs to the stenographer before he leaves the city and file them as Exhibit 85 and 86?

A. I will.

Q. 37. Now, are there any corrections you wish to make of anything you testified to on yesterday?

A. On this trip, to which reference has been made, I was under the impression that I had not touched upon the State of Georgia, it was quite near the North Carolina line, and in stating the trips I had made into Georgia, I overlooked this and have testified it was not in the State of Georgia that these photographs were made, and that certain other observations were made.

1358 Q. Who was present when you made all these various photographs of different localities, which you have filed, and different points, showing the sections of forests and farms and gardens, houses and things of that kind?

A. That applies to all the exhibits, everything that has been exhibited.

Q. Yes, sir?

A. Mr. Reese was present at all of the points in and about Ducktown, in North Georgia, and on the trips to the Cumberland Plateau, two trips, and on the trip to Altapass and vicinity in North Georgia; the pictures representing conditions in Blount and Sevier Counties, Tennessee, were made by myself, from localities that I was familiar with.

Q. You state that you do not know personally as to the exact locality where each of these pictures were taken that is, you mean you do not know who lives in that vicinity, in which the picture was taken, or whose houses you were taking; is that what you mean?

A. Yes, sir, I do not know of my own personal knowledge. I do not know all the lot numbers or sections and quarter sections I was on in Polk County, but did know from the location of the map that it was in that vicinity. At a number of different points on each of my trips to Ducktown I had a compass with me and took my bearings from the high stack of the Tennessee Copper Company and verified them, so as to check up the different localities, and I know of my own personal knowledge that I can locate them approximately on the map and they are correct.

Q. From whom, then, did you get your information that you have embraced in your notes?

A. As to the localities?

Q. Yes, and which you have testified to here?

A. From Mr. Reese.

1359 Q. And state whether or not you faithfully and correctly recorded in your notes, stated in your testimony the information obtained by you from Mr. Reese?

A. I did.

Q. That is all, unless you remember something left out, Professor?

A. I believe that is all.

Cross-examination.

Questions by J. A. **Drake**, Esq.:

Q. Did you have a color photograph of that plant, the Ducktown Copper Company plant?

A. Not at close quarters.

Q. Have you that kind of photograph in this record?

A. I have not.

Q. You could take a photograph of it, that would show just how that smoke boils up couldn't you?

A. Yes.

Q. What sort of looking smoke is that?

A. Sulphur dioxide. The sulphur dioxide is colorless.

Q. The kind we call sulphur dioxide, that boils out of that stack, what kind of looking stuff is that?

A. That is sulphur dioxide. It is colorless itself, but as it appears to the eye, it looks white.

Q. It is a kind of hazy, blue looking smoke?

A. No, white, as it comes out of the stack.

Q. Quite a volume of that issues from the stack of the Ducktown Copper Company, does it not?

A. It depends upon what you mean by "volume."

Q. Well, I mean by that, cannot you see it?

A. Yes.

Q. Do you remember the number of the picture that you filed there that has got Mr. Rennick's house in it?

1360 A. I will get it.

Q. Will you find it and look at it and say what that is across one end of it, pasted on there for?

A. That is the illustration shown in the picture.

Q. I will ask you if the picture was made looking towards the Copper plant?

A. Yes, sir, looking as I remember, about forty-five degrees to the right of the copper plant, about a half mile away.

Q. This strip on the left hand side of the picture, if that was removed, if you could not see the smoke boiling up?

A. No, sir. I can remove it, and can explain why the strip is there, if you wish.

Q. You need not do that, I thought it would show up on the record. You have filed a good many exhibits, wood and pieces of wood, and pictures or photographs of the growth of wood. I will ask you from your experience as a botanist, if you do not know that wood is not uniform in its growth anywhere?

A. Wood is, under normal, uniform conditions, relatively uniform in its growth.

Q. But is the condition uniform anywhere?

A. They are uniform over considerable stretches of time, not sufficiently variable to show striking differences in the rate of growth.

Q. Did you ever see a tree that would show a uniform growth all the way through?

A. There would be, if you measured microscopically, down to the thousandths of an inch, no uniformity, but there would be sufficient uniformity to see very clearly whether unusual influence had acted on the tree during that period.

Q. And cannot you see in any log, just look at it with your natural eye, and tell that the rings are not uniform?

A. There will be very slight differences in a tree under normal condition, yes, sir, as I stated on direct examination; for in-
1361 stance, a very dry year will show a slight reduction in the thickness of the ring, but these variations under natural conditions are very slight.

Q. You understand the question, Professor, do you not *not*; please just answer it directly, if you can?

A. (Question read.)

A. There would be slight differences in the thickness of the ring in any log. It would begin under normal conditions in the season with comparatively thick rings then the normal course of the tree is to reach after a certain number of years a maximum thickness of ring, and then as it gets older it dwindles down until its death.

Q. The color photograph—the long photograph that you introduced here, what number is it marked—Exhibit 73, where is it taken from?

A. The specimen was furnished me by Mr. Haenseler, from which the section was made.

Q. You do not know where it came from?

A. Not of my own personal knowledge.

Q. The growth, I believe you say shows back in 1906 to be normal?

A. Yes, sir.

Q. And then it gets worse up until about 1910, along there, and then it goes to getting better until, I believe you say, it is back to normal in 1914?

A. Yes, sir, 1912 and 1913 and so far in 1914, about normal.

Q. Now, if it should transpire that that smoke was worse up there in 1906 than it ever was in that section, you would not think that tree was exposed to it, would you, from the looks of that wood growth?

A. Judging from that single specimen, by itself, without any others taken in connection with it, I should not.

1362 Q. Do you know anything about the laws of the diffusion of gases, Professor?

A. I am not a physicist.

Q. Just looking at that smoke, I will ask you if it is not a fact that as it gets into the atmosphere, it acts very much like smoke coming out of a chimney, at times, and will carry along in a uniform volume or streak, it will go right straight out somewhere?

A. Yes, sir. This will happen under certain conditions. That is, I know enough about air currents and diffusion to know that up high in the atmosphere, smoke pouring out of a chimney will move for a considerable distance without the eddying effect that is produced if the smoke issues from near the ground. That is, smoke issuing near the ground, will strike a hillside, and little eddies will be formed. If released high up in the air, it will go straight off a considerable distance against a mountain side, without being greatly diluted by mixing with the air.

Q. And aside from hills and the contour of the country, is it not a fact that atmospheric conditions have a great deal to do with the condition of smokes and gases?

A. Atmospheric conditions, so far as I know, should not have anything to do with what physicists know as diffusion of gases. Diffusion is a moleculear process which occurs in perfectly still atmosphere, and air currents would be mechanical movements, or streaming of the air, which would assist in the mechanical influences of the air.

Q. Would not the dissolution or scattering of the smoke vary under different atmospheric conditions?

A. They would.

Q. And would not they vary the appearance of that smoke?

A. Well, I do not know. Of course that is advancing into physics in which I do not claim to be an expert. I remember something of course, of what I studied. I know of no effect of the
1363 atmosphere that would change the appearance of smoke to the eye.

Q. I believe you said you were raised down in the country about Eagleville, Tennessee, that is a small country town?

A. A little village. I was raised in the country, yes.

Q. Have you not seen, many times, when you were a boy, chimneys out in the country, old fashioned chimneys where they burned wood?

A. Yes, sir, I have.

Q. Haven't you seen smoking boiling out of those chimneys and go away out for two or three hundred yards, going off in a straight line?

A. Yes.

Q. Looking like it would hold right together?

A. Yes.

Q. In a continual thread.

A. Yes, sir, I have.

Q. And haven't you, on other occasions, seen it when you could hardly distinguish it?

A. I have.

Q. What would you attribute that to?

A. As far as my observation has gone, I would attribute that to the change of position that the smoke would go through, and it would be against the sky so you could not see it, so far as I know, as matter of common sense observation.

Q. That is what I am speaking from, just common sense standpoint. Doesn't the condition of the atmosphere have all to do with the way smoke rises out or hangs to the ground?

A. Yes, sir, that is true. That is a different question to what I understood the others.

1364 Q. And at that time, would not smoke rise up straighter and higher than it would on other occasions, the same kind of smoke or gas?

A. Yes.

Q. And what would be the cause of that?

A. So far as I know, I would attribute that to a difference in the pressure of atmosphere, and, perhaps, that is, the atmosphere becomes heavier, and the smoke will be more apt to rise higher.

Q. Haven't you seen smoke on some other occasions collect in great balls, and apparently go rolling through the elements; have you not seen those conditions?

A. Well, no.

Q. Especially from a locomotive, have you not seen that at times when they would make most beautiful pictures in the air?

A. Yes, sir.

Q. And would not these balls hold together, and go off hundreds of yards before they would scatter?

A. I have seen them go a considerable distance, but if the balls should strike a hillside, they would break to pieces and scatter.

Q. Did I ask you anything about any hillsides, or anything of that kind?

A. No, but you asked if I had seen them scatter, and I have, under those conditions.

Q. Of course, anything Professor, that smoke was driven against, in the way of mountain or hill, would check its progress in that direction?

A. Yes, sir.

Q. And if a mountain should intervene between a fellow's crop, and the smoke, the mountain would have the tendency to break or protect it from the smoke?

1365 A. I should think so.

Q. How long, Professor, have you been in the employ of the Ducktown Copper Company?

A. I have not been particularly in their employ over any great period of time. I have spent intervals of time since the 12th of September, last, in its employ, in this investigation. I have not been continuously in its employ.

Q. How much time have you spent, if you know, in the collection of these specimens and photographs?

A. Do you mean in this immediate case, or altogether in the region?

A. In all of them.

—. I could not tell exactly, it has been, you mean in all, the entire investigation, or just in making the photographs?

Q. In this particular case?

A. It has been, perhaps, let me see. Last Fall, on the case fourteen days, in the neighborhood of Ducktown in the study of this particular case, altogether and this spring, would, perhaps, make something over twenty days in the field investigation.

Q. On all your tours down into the State of Georgia, I believe you say, Mr. Reese, was your conductor?

A. Yes.

Q. And he is an employee of that Company?

A. Yes, sir.

Q. And familiar with that country?

A. Yes, sir.

Q. And all the samples and specimens that you have here, you got them at points to which he conducted you?

A. Not in that sense, exactly.

Q. Well, in what sense?

A. I asked, when I first met Mr. Reese, to be taken to the points most exposed to the smoke of the Ducktown Copper Company, and suggested a number of points of investigation, and in all my

1366 investigation I searched out the points which I thought to be the most liable to smoke damage.

Q. Did you find much of it down there?

A. As I stated on direct examination, last Fall I found no evidence of injury to the foliage that could certainly be referred to smoke.

Q. If there was smoke damage down there then in any considerable quantity, you were not conducted to where it was, is that what I understand you to mean?

A. I did not see it on these trips if it was there.

Q. I believe you stated that you worked southwest mainly from Ducktown and Copperhill, towards the Vestal property?

A. No, I did not intend to leave that impression. I made a trip at a greater distance southwest, but there were about two trips made into the Southeast that are not platted on my map.

Q. That was the trip you made up the Toccoa River, isn't it?

A. One of the trips was across the North Carolina line, and another which is not platted on here was made——

Q. Mr. Reese was with you on that trip?

A. He was with me on that trip.

Q. You——

A. I can tell you exactly, if you will wait a moment. In January I made the second trip into the region by some different route, which would take me some time to locate, but Mr. Reese can give you the exact location.

Q. On that trip, just speaking as up the river, you know what I mean by that?

A. Yes, sir, up the Toccoa River.

Q. On one of your trips up there, on that trip that you made, was not the smoke so bad that morning that you could not take photographs, the sulphur smoke?

1367 A. No.

Q. Did you make a trip up the river in June with Mr. Reese?

A. No, not up the river.

Q. Were you anywhere over there taking photographs when the smoke was so bad that you had to abandon the taking of them on account of the smoke?

A. No, some of these, there was smoke on the 8th, on that trip.

Q. The eighth of June?

A. The eighth of June, last. On that trip the Paintertown section, that is photographs my numbers 538-539 and 540, were gotten at the point indicated on the label. I was in there, and saw the condition of the air at that time.

Q. Did you ever at any place or at any time, when you were out with Mr. Reese, taking photographs, have to quit taking *taking* pictures because the smoke was bad?

A. One time.

Q. When was that?

A. That was on the morning of October sixth, 1913. I had a comparatively short time between trains to get pictures. My exhibit No. 83, that is my number, 79 was gotten on that morning in Quinn's orchard, and well—well, I stated awhile ago that I had to stop. I really did not stop, but the nearest I came to being interfered with was on the way to that point the smoke was pretty dense. It cleared away before I got to where these trees are shown in that view.

Q. Did you smell the smoke particularly strong that morning or that day?

A. I am not sure. I made no memoranda of that point. Let me see, I made no record of it, but I think probably I did.

Q. I believe you said you went over to Fentress County

1368 and on the Cumberland Plateau on one trip, did you?

A. I am not sure it was Fentress County, I went on one trip to Monterey and Wilder on the Cumberland Plateau, and in and around Harriman and vicinity.

Q. The conditions of the forests are pretty bad over there?

A. Pretty bad.

Q. It was not normal was it?

A. I should not call it normal, not, that is, that the forest was in a healthy condition.

Q. How many miles from Ducktown is that section of the Cumberland Plateau?

A. I am not sure, I think,—it must be, as I stated on direct examination when the question was put to me, I guess it must have been at least 150 miles, air line.

Q. Professor, is there not millions of fine, healthy forests between Ducktown plant and that Cumberland plateau?

A. I am not sure.

Q. And to make a comparison with this North Georgia section you would not want to see a good healthy forest to get your samples from, would you?

A. Comparison, what kind of samples, may I ask?

Q. I mean for comparison, general pictures and wood, and everything like that.

A. Well, it would depend upon the point of view from which I would want to make the comparison.

Q. What I meant by that, won't the North Georgia section show up mighty badly compared with a good, healthy, normal forest?

A. I think it would.

1369 Examination by Lamar Hill, Esq.:

Q. 1. Professor, are you familiar with the action and effect of sulphur dioxide on leaves of trees?

A. I think I am.

Q. 2. What appearance do the leaves of the forest trees have after an attack or after being brought into contact with sulphur dioxide?

A. I stated on direct examination that the effect is manifested in different ways on different species of trees, depending in part on how long after the fumes had struck the leaves and on the species of trees.

Q. 3. My question was intended to be general not specific, if you can answer generally as to general forest trees, the leaves of general forest trees, what is the general effect of sulphur dioxide on it, not any spcific tree?

A. What is the physiological effect, it is to retard the function *the function* of the leaf.

Q. 4. I asked as to the appearance.

A. The appearance? Well, a very sever- injury would result in defoliation.

Q. 5. As to the first appearance, of any attack on the leaves, what is that, generally speaking?

A. The first appearance of a severe poisoning by sulphur fumes, would be to completely kill the whole leaf if a sufficient amount of the fumes struck it to produce the effect. And then a slower effect would be to produce a gradual discoloration, resulting in different classes of discoloration of the leaf, and if the action continued it would turn brown.

Q. 6. There is no definite portion of the leaf where the effect is first indicated?

A. No, sir, in the case of pines it is very certain to make its first
appearance on the tips of the leaves, by paling in color,
1370–1379 and then if the application begins in a small amount
the region of the tips and finally the dying and browning of the tips.

Q. 7. The maple, I believe you state the maple in one of the hardiest of the trees as to resisting the effects of sulphur dioxide?

A. Yes, sir.

Q. 8. As to the maple or oak leaf, is there any uniform place for the effect to be first apparent?

A. The appearance of spots is liable to be scattered over the oak leaves, generally and maples around the margin of the leaves.

Q. 9. Now, Mr. Bain, are you familiar with the effect of frosts on the leaves of forest trees?

A. I have seen the effect of forst in some instances.

Q. 10. What is the effect of frost as to the appearance of the leaf?

A. Frost is liable to kill the portions of the leaf first exposed, for instance the action of frost would be manifested on the unfolding leaves, you have leaves opening from the buds, in different ways, exposing different portions of the leaf. In the case of a pine, for instance, the pine leaf growing out, the tip first, frost would be more apt to kill the tips of pine leaves. In other cases, whatever portion of the leaf is first exposed to the weather. If the middle portion of the leaf appears first, the frost would attack the center then run to the tips.

Q. 11. Then, as I understand you, you say there is a difference in the apparent effect of the sulphur dioxide on the leaves, and the apparent effect of frost on the leaves of forest trees?

A. In many instances by inspection it would be impossible, from
just an examination of isolated samples to tell which of the
1380 the two injuries, I mean which of the two agents were re-
sponsible for the injury. If you could get a sample early enough in the stage of the growth of the leaf, that is soon enough after the frost action, the frost freezes the water in the cells and ruptures the cells, by microscopic inspection you can determine whether it was frost injury.

Q. 12. That would have to be done immediately after the frost?

A. Not immediately.

Q. 13. Well, then, while the leaf was still in the frozen condition?

A. No, before the leaf is completely dried out.

Q. 14. Later on there could be be no method of differentiating between the two?

A. I am not sure as to whether the method will succeed in thoroughly dried out leaves.

Q. 15. Now, with regard to the action of sulphur dioxide, and particularly that emitted from the stack of the Ducktown Copper Company, it does not affect uniformly the whole territory, is that true?

A. That is true.

Q. 16. It is likely to affect a piece of timber land here or a tree here, and then skip for some distance and affect another tree or a group of trees, is that true?

A. That is true, with this understanding, that is, there are certain conditions, there are other conditions affecting the injury of smoke than the mere amount of sulphur fumes in the air, for instances it would depend on the location of the tree, the amount of moisture there, and its exposure to light.

Q. 17. I am talking of those conditions, taking all of them into consideration, and all other conditions there would be no uniform effect, it would be as I have stated on any section of the forest in a
section of the country?
1381 A. That would be true, I should say, but a comparatively
narrow scope.

Q. 18. There is no forest or section of the country where uniform conditions exist as to each tree in each forest, as regards moisture, location, condition of foliage, etc., is there?

A. I should think there is, there are forests where you could consider all external conditions practically uniform. There is another effect that enters in there, and that nobody is able to explain, and that is the effect of the individual resistance of trees to smoke.

Q. 19. Then trees are like human beings?

A. Some extent, and some may stand it and some may not.

Q. 20. They are like humans?

A. Like human beings.

Q. 21. Some trees have a resisting power and more vitality than others?

A. Yes, sir.

Q. 22. Now, if the conditions were uniform, leaving that out, how do you account for the fact that sulphur dioxide strikes a tree here and another one yonder, and a couple of trees in still another place, and between these points of attack there may be trees not attacked?

A. That would be explained principally by the direction of air currents, I should say, carrying the fumes and the protected positions of certain trees. These air currents some times jump over, and they will in passing over two ridges strike the top of one and then jump to the top of the next ridge, and in case of a stream running between the ridges, it is possible for the currents to carry the smoke around the ridge and carry *ip* up the intervening valley, and injure the
vegetation when the trees on top of the ridge would not be,
1382 and that is accounted for by the fact that most of the damage
is done in moist atmosphere, it is more apt to kill, increasing
in proportion to the moisture, the poisonous effects of the fumes.

Q. 23. Then the location of trees, the protection offered by other trees, I will ask you if it is not true, that other trees can afford protection to a tree, being higher and more densely foliaged in leaf?

A. That is true in dense forests, the edge of the forest directly facing the fumes would have the tendency to be injured first and the trees and the dens foliage inside would deflect the air currents and delay the movement of the smoke ladened current.

Q. 24. Then as I understand the protection afforded by trees, mountains, or ranges, or in other words the location of a tree, and any difference in h-ighth, in vitality, between it and another tree, the difference in species of trees, all of those things must be taken into consideration in determining whether some trees may be attacked and other not?

A. Yes.

Q. 25. And air currents and conditions of the atmosphere?

A. Yes, sir.

Q. 26. You do not intend to say by your evidence that there is no damage done in Georgia?

A. I do not, that is, that there has no damage been done.

Q. 27. Well, I will ask you whether you intend to say by that evidence that there is no damage being done in there?

A. I testified on direct examination I found evidence of damage this month. That is to foliage you mean, the immediate effect?

Q. 28. Yes, the primary effect. Now, professor, let us go just for a moment into the evidence that you gave on yesterday as to the life of a tree; I understand you to say that a tree de-
1383 rives its sustenance from two sources, first from the roots, or from the roots to the tree?

A. There are two avenues by which nutrients enter the tree.

Q. 29. The roots as I understand, take up the minerals from the ground, together with the moisture from the ground, and send them upward through the tree into the leaves, and then through them into the air?

A. They start them in that direction, that is the moisture passing into the air, the mineral nutrients remaining in the tree.

Q. 30. Forming the food or nutrient for the tree?

A. That is right.

Q. 31. And the leaves, as I understand are used to take in from the air the various chemicals which are converted into nutrients for the tree?

A. The leaves have breathing pores through which carbon dioxide of the air enters, that combines with the water in the body of the tree, that combination being made in the chlorophyll, and assist in the manufacture of the chemical food of the tree. And the leaves are also the principal agents exposed to the air, through which oxygen enters the tree, they are used for breathing.

Q. 32. They are then, the lungs, the mouth in a certain sense also?

A. They are the lungs and in a certain sense the mouth, yes.

Q. 33. They perform the double or triple function of the mouth, the lungs and the stomache for digestion?

A. Now, the more modern view of plant physiologists of digestion is that it is to make the food, that the digestion of the stomache of the human. For instance, we take into the mouth starch food which

we add to by moistening, with saliva, and certain other
1384 liquids, and they are in turn converted into sugar. In the
plant the leaves manufacture their own food, the digestion
should very properly be the same process by which corresponding
chemicals render the starch soluble so the plant can use it for food.
The fundamental difference between the green plants and the human
beings, in that sense, is that the green plants are able to take the raw
materials of the atmosphere, and animals and some plants are not
able to do this.

Q. 34. Now, then, there is no — important part of the tree than the leaves?

A. That is true.

Q. 35. And the roots of the tree, of course are underground?

A. Yes.

Q. 36. And in a way are protected?

A. You mean from sulphur fumes?

Q. 37. From the exterior, from injury from the outside.

A. Well, there are certain diseases that are known to attack the roots of trees.

Q. 38. I do not mean diseases, attacks from the gases and other infections above ground, they are purely local, the affections that attack the roots?

A. Yes.

Q. 39. No gases that may be in the air, the leaves are the most exposed and susceptible parts of the tree to injury?

A. Yes, sir.

Q. 40. If sulphur dioxide settles on leaves, crisping the-, browning them, and burning them, it takes away from the tree what percentage of its nutrients,—I will put it in a different way, what percentage of the nutrients of a tree is furnished by the leaves?

A. Well, by far the greater part of the nutrients which enter into
the material sustenance of the tree.

1385 Q. 41. Injury to the leaves, or death to the leaves would
affect the tree a great deal more than death to the roots, of
course either would kill?

A. It would be pretty hard to say, we might say that any single agency that enters into the life of the plant, if it is removed the plant will die, for instance if you remove the iron, it will die, if you cut off the lime it will die, if you cut off the carbon-dioxide, it will die.

Q. 42. I understand but speaking relatively,——

A. Speaking relatively, I consider the leaves the most important organs of the plant.

Q. 43. Then if the leaves were killed, no matter if the roots were living, there would be an entire death to the tree?

A. The plant has a certain power of regeneration of leaves. If you have enough matter left in the way of food they will live. Further, when the frosts kill the leaves in the fall the tree does not die.

Q. 44. That is after the functions of the leaves are performed for the season and the nutrient for the coming winter is stored?

A. Yes, sir.

Q. 45. But if they are killed in advance of the natural time for dropping off, before the tree has completely stored its nutrient——

A. The trees very frequently, or occasionally, I might say, and naturally, all of the leaves of the tree are killed but if they have a store of nourishment packed away to start them again, as soon as the new leaves are put out just enough to expose the surface, and the cause of the injury has not proceeded too far, the leaves are able to begin to manufacture food, then the tree will begin its growth again. Not only the leaves, but all the fresh shoots, and you may
say back for several years on the growing branches, furnish
1386 food. The chlorophyll on the branch, everywhere you see
the green layer just below the bark, if the leaves be killed
there might be enough left of that on the tree to sustain it.

Q. 46. Would you say a tree living under those conditions would be as prosperous as a tree performing all its natural functions?

A. No, sir. It would be shown by the growth of the season, it would be reduced.

Q. 47. Then, if the leaves are exposed to contact, or brought into contact with sulphur dioxide, the degree of the affection would in a way impair the functions of the leaves, and affect the growth of the tree?

A. No, I do not believe that would be true. It is generally known, that is, it is a general principle, in the action of poisons, that a very minute dose will stimulate almost any vital function.

Q. 48. You misunderstand my question, I was not speaking of the percentage of poison in affecting the substance, but I was speaking of the attacking substance as of the given strength of poison, the attacking strength which would be injurious, any attack of that kind, of a given strength of poison that would impair any of the usual functions of the leaves, would affect the growth of trees?

A. Well, I do not believe that would be true. In the first place, it would depend on the length of time that the leaves were attacked by the poison if it was of sufficient strength to injure, if of very brief period, the leaves would suffer no appreciable injury, but if for a sufficiently prolonged period, they would suffer injury.

Q. 49. I am speaking of an attack in which they would suffer injury, even a slight injury, that would impair the functions of the
leaves, and have an effect on the growth of the tree?

1387 A. It would effect the impairment of the functions of the
leaf, but not necessarily on the growth of the tree.

Q. 50. Does not the impairment of the leaves affect the growth of the tree?

A. Not directly. Indirectly, that is the fact, if the tree be affected for a sufficient length of time to exhaust the store of nutrients which it has in store, it might affect the growth sufficiently to register an undergrowth.

Q. 51. But if it had sufficient store of nutrients, would it not loose the nutrient which would ordinarily be stored by the leaf in its performance.

A. It would.

Q. 52. Then, it would affect the growth of the tree?

A. Not the growth, but food manufacture of the chlorophyll. It is like the food that the boy eats as compared to the amount of food the mature man eats. If I ate the amount of food which my six year old boy eats, each would digest it, he grows and I do not.

Q. 53. But the tree is in this growing stage at all times?

A. I used that point to illustrate the fact that there is a difference between food manufacture and growth. For instance, a plant grows more rapidly at night that it does in the day time, but it manufactures no food at all at night, and the growth of trees is naturally independent of food manufacture.

Q. 54. However, it uses the food which has been manufactured in the day in its growth at night?

A. Yes, it does that.

Q. 55. There could be nothing to add to the physical construction of the tree except the food which it takes in from the outside through the ground or air?

A. That is true.

Q. 56. Then that is all it has to depend on for its growth?

A. That is for its food.

Q. 57. How long does a tree grow, up to what age?

A. It grows as long as it lives.

Q. 58. It never quits growing until its death?

1388 A. If a tree stops growing, very soon it is dead.

Q. 59. Now, professor, the attack of sulphur-dioxide or other poisonous gases upon the leaves would have an effect upon the rest of the tree also?

A. If it affects the leaves.

Q. 60. If it affects the leaves it would have its effect upon the rest of the tree also?

A. There would be a difference of growth, there would be an accom-odation of growth, naturally, between the roots and the leaves.

Q. 61. I believe you said on yesterday, that the food manufactured in the leaves were sent to the roots as nutrient to the root?

A. A reduced growth would very probably, at least be associated with a reduced growth of the roots.

Q. 62. Would it not be a relative reduction?

A. There is a certain accom-odation between the two functions.

Q. 63. Professor, what effect in the preservation of soil do trees have, or rather, what is the function of a forest in the preservation of soil and land?

A. Well, a forest, of course, I am not a soil specialist, but I happen to know enough about that to answer the question. A tree in the first place protects the soil from washing away, that is the leaves on top, and its underlying roots would tend to bind the soil together. And in the second place, the addition of falling leaves and twigs from year to year forms vegetable matter which furnishes what the soil chemist knows as humus in the soil. Then also, a forest under normal conditions helps to hold the water in the soil and prevents its escape into the air.

Q. 64. Then the presence of forest is absolutely necessary to the life of the country?

1389 A. That would be an economic question. Of course, there are sections where populations are maintained without it.

Q. 65. I do not mean in cities, but I mean in agricultural districts, as economy, that is the purpose of the organization of the various conservation congresses?

A. Yes, sir.

Q. 66. Have you ever visited the Appalachian Forest Reserve in North Georgia, the Government Reserve?

A. I have been only over the territory that you have mentioned here—I mean that I have testified about in this case.

Q. 67. Just in Fannin County, and in the same section as the Government Forest Reserve?

A. Yes, I have been in Fannin and Murray, but whether that is in the Reserve I am not certain.

Q. 68. Fannin and Union, you mean, instead of Fannin and Murray,—well, that is not material. Coming for a minute to these samples you have introduced, certain samples or sections of trees as illustrating the annual rings from which you can determine the annual growth of a tree, and what they call growth checks?

A. Yes, sir.

Q. 69. Now, I will get you to state whether or not you can tell as much about the growth of a tree from a section, such as your exhibit No. 72, as you could if you had the entire cross section of the tree, circular section?

A. I consider this evidence fully as reliable as if I had a section across the entire trunk.

Q. 70. You mean to say that every part of the section across the trunk of the tree will show the same relative size of annual rings as every other portion of that section?

A. No, I should modify that. I have used the accepted method in common use in Germany for determining the problems that
1390 we have in this particular case, and the check is shown by taking of a small part of the section at a uniform height from the ground, selecting carefully a portion of the tree that is of uniform conformation of growth. This is a very reliable method of determining the growth of trees.

Q. 71. Would not the method be better if you had the entire section across the tree?

A. I should not consider the evidence gotten from an entire section across the tree any more reliable than what we have right here.

Q. 72. I will ask you if you have not seen trees where almost all the growth, or the larger portion is on one side?

A. Yes, but I can always look at a tree and determine where that is the case.

Q. 75. You can determine that from a section which shows only the large side of the tree, or the small side?

A. How is that?

Q. 74. I say, if you have the section which shows only the smaller side of the growth, that which does not show any of the lines on the larger side, could you determine from that as well as from an entire section, the growth and growth checks of the tree?

A. I think I could.

Q. 75. How could you do that?

A. Well, if we see a tree that is not uniformly circular in outline, and asymmetrical, that is on one side it has grown more rapidly, if it is appreciable to the eye, that means that the annual rings on that side over a considerable number of years have been uniformly thinner. If anything has happened to retard the growth of the ring on that side, there would be reduction in its size in the same proportion on the other side, and the section from that region would show much more reliably the growth.

1391 Q. 76. You say the rings on the larger side would show the general diminution on the other side?

A. Not generally no.

Q. 77. If you see only the large side, how could you tell whether on the other side it had been injured?

A. Well, I have examined enough sections of trees to be convinced, personally, of the reliability of the method and of the correctness of the statements I have made.

Q. 78. I know, but I am asking you now to explain how you satisfied yourself as to the correctness of that method?

A. I have examined a sufficient number of stumps to know it is.

Q. 79. Professor, do you mean to say you must see the tree from which you take your section, before this section would be as reliable as if you had the entire section from across the tree?

A. That would depend on the relative amounts, the proportion of growth checks. Where the growth check is very marked, the tree, at any point above the roots, up the trunk with-in reaching distance, I mean to say, as high as two or three feet above the root, then it would be within easy reach of a man's hand, would register, would show if there is any marked reduction of growth over the tree.

Q. 80. Is not all of that dependent upon the side of the tree from which the section is taken, and must not you see that tree?

A. Not if the growth checks are striking at all, that is if the tree is very much checked, the section taken from any part of it would show this reduced growth.

Q. 81. Then, I will ask you if you ever saw a tree in your life where the annual rings were uniform around the entire section?

1392 A. Well, I have examined quite a number. It would depend of course upon what the uniformity,—what you mean by uniformity, if you get down to microscopic sections and measurements, you would find a difference in going around the tree.

Q. 82. I mean if you looked at it with your eye, in going around a section from across the tree, if you looked at it with your eye, would the distance between the outlines of each ring be the same, uniformly around the section from start to finish?

A. Generally you will find a difference as you go around the tree.

Q. 83. There would be a difference?

A. If the tree is one of rapid growth, for instance a white pine, where the annual rings are thick enough to see them distinctly, in many cases, for instance, the hemlock, the hemlock grows much more slowly than the white pine. I remember to have examined one, probably 260 years old, and the growth was very slow, and I think it is very improbable that in the normal hemlock the eye would detect any difference. In white pine which you speak of, you would be able to distinguish the difference.

Q. 84. Then, is not that true in the majority of forest trees?

A. There would probably be a difference.

Q. 85. Then, Professor, I will ask you, if you can tell as well from a portion of the section across the tree as from the entire section across the tree?

A. If it was a question of very slight difference such as we should see under ordinary normal conditions in the forest, a single core taken out at random, would probably not be as reliable as the section across the entire tree.

Q. 86. Is not that same thing true with a portion of the section, as it is with the core?

A. Not a portion as large as the sample you have here.

1393 Q. 87. Take your exhibit No. 66, and tell me if there is not a difference in the distance between the annual rings in one portion of the section and another portion?

A. There is.

Q. 88. Is it not a considerable difference?

A. There is.

Q. 89. As much as one hundred per cent in some annual rings?

A. There is, just a moment, one hundred per cent, there is.

Q. 90. Now, what affect, professor, you state a tree is somewhat like a human being in regard to its vitality and its resisting power against the disease, what effect does the lowering of the vitality of the tree have on the life of the tree, or the growth?

A. It reduces its growth.

Q. 91. It reduces its growth?

A. Yes.

Q. 92. Does it also lower its resisting power in proportion to the lowering of the vitality?

A. Resisting power to what?

Q. 93. To attack of diseases, insects or any other thing that might attack trees?

A. Lower its resisting power by smoke?

Q. 94. Lower its resisting power to attack by poisonous gases, or from posionous gases, from insects or any other disease that would ordinarily attack trees, such as fungus?

A. It is a mooted question among the specialists who have investigated this question as to whether a smoke injured forest is more or less injured by insects, some contend it is more injured by them, and some less, so that at the present state of knowledge on the question, it would render a definite answer to this question impossible.

1394 Q. 95. A definite answer you say is impossible?

A. It is not a decided question, as regards this.

Q. 96. You could not give a definite answer yourself?

A. As regards its relations to fung-us diseases, it might render the plant more susceptible, and probably does in some cases, but in other cases, there can be little doubt but that it renders the plant more resistant to certain diseases.

Q. 97. Smoke you say renders it more resistant to certain diseases?

A. I think that very probable.

Q. 98. As to the forest trees of North Georgia, I will get you to state whether or not that does not render them more liable to attack and more susceptible to attack from insects and from fungous.

A. I have seen no evidence that it renders them either more susceptible to insects or to fungous diseases, the fact is I have seen, in my personal knowledge more damage by insects in other sections than there.

Q. 99. I am speaking of the possibility professor, of it rendering the forests more liable to attack from fungous and insects?

A. I could not answer that question, definitely, because it is a general question that scientists are not agreed upon.

Q. 100. Now, that applies both to insects and diseases?

A. Applies to fungous also.

Q. 101. As to disease, does it lower its resisting power?

A. It probably would under certain conditions, but as I said awhile ago, I know personally, through either study of the subject, or knowledge, nothing that would indicate that it renders the tree more 1395 susceptible to fungous diseases. I have evidence of my own observation, as I stated awhile ago, that it probably renders some plants, for instance, a peach, more resistant to fungous diseases.

Q. 102. That is a very hardy tree, as regards it- resistance to sulphur dioxide?

A. It appears to be.

Q. 103. You used two terms on yesterday, I want to ask for a little information, exactly what you mean, you say natural causes of the death of trees, what do you mean by natural causes of the death of trees?

A. I mean death from old age, from lightning, from insects, from fungous diseases, and possible we may say from drouth, that is any other agencies than the agencies of man, such as injuries from fires or fumes.

Q. 104. Are natural causes, professor, causes which arise from the nature of the thing about which you speak?

A. That is not the sense in which I use the term.

Q. 105. That is what I have not understood. Then you mean by natural causes, as you say, anything which arises not from the agency of man?

A. Yes, sir.

Q. 106. You spoke yesterday of the physiological conditions existing in forests, or around trees, what do you mean by physiological conditions?

A. I used that term in connection with the top dying of trees in isolated positions. I mean by that, trees growing in forests, which have had the other trees removed from around them. I have by my own observation seen trees that appeared to be perfectly healthy,

otherwise, dying at the top. It is a well known fact, that darkness or diminution of light, or illumination, increases the usual growth in length of any plant, like a tree. So, that a tree growing in a forest, surrounded by numerous trees, grows much taller of
1396 trunk than trees grown in the open. It grows very rapidly
in length puts out branches at frequent intervals, and these branches are very soon shaded in the growth of the tree by other branches, so after a while, after being unable to reach the light, there is a self-pruning of the tree, that is, these branches which bear leaves which cannot reach the light soon die and the young forest shows numerous dead branches up and down the tree. Now, if the tree had grown up in the open, these branches would remain on for a great length of time, and would form a rounded tree. Now, if there is an accommodation between the growth in length of a tree and the amount of branches and the distance apart of those branches on the trunk of the tree in the same way, it is my personal opinion, that if you remove the forest growth from around the tree, that the lower branches which had then been shaded by the others will begin their functions and grow vigorously and the tree will not have need for the top branches, so it will automatically, physiologically die.

Q. 107. You have addressed yourself to top dying of chestnut, but generally, what do you mean by the term "physiological," when used in the connection in which you used it?

A. Well, that was the connection that I understood that I used it in.

Q. 108. I will put it this way, what do you mean by a physiological condition as applied to trees, do you mean an automatic condition, or natural condition, or method of nature by which the tree prunes itself of branches?

A. I used that term, physiological in con*d*radistinction to pathological, that is the diseased condition, in the true sense of the word, any conditions that are not normal.

Q. 109. Would not conditions existing in forests which
1397 had been attacked by sulphur-dioxide, be physiological?

A. No, I should say that trees in forests where there had been a sufficient sulphur smoke to produce any injury, or any interference with the normal growth of the tree, or course of its life, would be a pathological rather than physiological one.

Q. 110. Then, you use physiological, as applied to the method or correction of disease by the tree itself?

A. I do not see how I can make it any clearer, but here is the point, an organism goes along a certain course through its life, and it is performing its functions normally.

Q. 111. In the growth of a tree, I believe you state it was by the formation of cells?

A. Yes.

Q. 112. The light cells you showed us in your exhibit No. 73, the light spots are what you call the spring growth?

A. Yes, sir, the larger cells.

Q. 113. The larger cells indicated by the large light spots are the spring cells?

A. Are the beginning of the spring growth, in each annual ring.

Q. 114. In a tree growing normally, do the spring cells predominate over the autumn cells in number or not?

A. Well, I could not answer that question definitely, I do not know whether it has ever been investigated by anybody of not.

Q. 115. I will ask you to state whether or not in your opinion, I believe you stated on your direct examination, in your opinion the growth for 1906 was normal.

A. I did.

Q. 116. Then would you say that the growth for 1913
1398 was normal?

A. I should.

Q. 117. I will get you to state whether or not the spring or autumn cells predominate in 1906?

A. In the growth for 1906, the spring cells.

Q. 118. In the growth for 1913, which predominate?

A. The autumn cells. (Examining the photograph for the last two answers.)

Q. 119. From which source, the roots of the tree, or the leaves, do the autumn cells come, or gain the larger part of their nutrient?

A. They get the greater part of,—in fact the material out of which the cell walls are made, comes up, with the water from the roots,—about equally from the roots and the leaves.

Q. 120. What would be indicated by the preponderance of autumn cells in the annual ring over the spring cells?

A. Nothing.

Q. 121. Nothing at all?

A. Nothing.

Q. 122. You would say that would be as normal as the other, for either one to predominate?

A. I have examined that section in regard to the number of cells, I have gone over that pretty carefully, in connection with this investigation, and there is not enough difference between the number of the spring and autumn cells to indicate anything definite.

Q. 123. Well, then, why is there a variation of spring and autumn cells in any one year?

A. That question would be pretty hard to answer, I do not believe that any botanist could give a definite answer.

Q. 124. It shows some difference in the condition?

1399 A. Some difference in condition, may be internal or external, no body has investigated the question.

Q. 125. What effect would a wet fall have upon it?

A. It would have a tendency to prolong the spring conditions.

Q. 126. I will get you to state whether or not an attack by sulphur-dioxide over either a spring or fall growth would have the effect to check the growth?

A. None that I have been able to find.

Q. 127. I believe you say that the cells draw their sustenance both from the leaves and the roots?

A. Yes, sir, the nutriment is manufactured in the leaf. The leaf is responsible for the combination of carbonic acid and water, and the plant manufactures its food in the leaf.

Q. 128. But where is it done, then, if the leaf is attacked in the spring, it would have a tendency to diminish the growth of the spring cells?

A. Yes, if the leaf were taken off it would be, I do not know about affecting the autumn conditions.

Q. 129. Any injury to the leaf, regardless of whether effect was destruction to the leaf or not, there would not be any nutriment made by the leaves during that period of time?

A. Not during that period.

Q. 130. Now, professor, you spoke of the top dying of chestnut trees. I will ask you whether or not an attack of sulphur dioxide could produce that?

A. I think it could, yes, sir.

Q. 131. I will get you to state whether or not sage grass which grows in the vicinity of the Ducktown plant is a hardy plant?

A. Yes, sir.

1400 Q. 132. Is it very hardy?

A. I think so.

Q. 1*53*. One of the hardiest plants that grows.

A. I think it is.

Q. 133. Now, professor, you stated that you found dying timber in the Cumberland plateau, and in North Carolina, of course you do not mean to say that it is not possible for forest in one section of the country to be killed by one cause and in another section by an entirely different cause?

A. That is true.

Q. 134. There can be just as much difference as there is between diseases in different parts of the country?

A. That is true.

Q. 135. And to what did you attribute the death of trees in the Cumberland Plateau?

A. I stated on direct examination that the chestnut trees were dying from causes that I did not know, yet evidently from natural causes, that the hemlock trees were probably dying from insect attacks, because I found one there at one point that had evidently been killed by the beetle, and that the white pines were dying from some cause which I did not recognize, evidently from some natural cause.

Q. 136. What is the resisting power of hemlock as compared to oak and chestnut?

A. To what?

Q. 137. To, say, the attack of sulphur-dioxide?

A. The hemlock is very much more sensitive than either oak or chestnut.

Q. 138. The thin sap wood trees are the ones that are most easily affected than the thick ones?

A. So far as I know there is no relation between the thickness of the sapwood and the power of resistance.

Q. 139. What is the power of resistance of all evergreens
1401 as a class, as compared to chestnut and oak?

A. Well, I have not made any observations that would enable me to tell how resistant holly is. Holly is, so far as I know, the only one of what botanists know as dicotyledonous that are known as evergreens. I presume by ever-green you mean what botanists know as conifers,—hemlock, pine, spruce, etc. As a class, conifers are considerably more sensitive to sulphur fumes than any other forest tree.

Q. 140. These trees carry their leaves the entire year, and are storing nutriment during the entire time?

A. No, that they are storing nutriment during the time when the temperature conditions are favorable, on the other hand, in cold weather, they do not, but they are alive during that period, and during the winter season, during the cold weather, at least when the growth cannot occur, they are quiescent, they are non-functional.

Q. 141. Well, the leaves are out, that is they are,—well the leaves of any tree are out and are susceptible to injury by sulphur dioxide attack then more so than when there are no leaves?

A. Well, that is the tree is more susceptible?

Q. 142. Yes?

A. Yes, sir, that is true.

Q. 143. Then an evergreen is more susceptible to injury as to time than any other tree?

A. The best explanation that has been given for the power of resistance by conifers is that in some manner which we do not understand they lack what we know as power of regeneration or recovery from injury, that is, if maple leaves are injured, for instance, by smoke, sufficiently to take them off, the maple tree has greater power to put out more leaves, than pines and coni-
1402 fers generally, which have not this power. That is the best explanation I have.

Q. 144. You said on yesterday that you made a study of the effects of copper compounds on leaves, and your study of that had been of much longer duration than on the action of sulphur dioxide?

A. That is true.

Q. 145. You do not mean by that that you had studied the effect of copper fumes from these plants?

A. Not in that investigation.

Q. 146. You stated that copper compounds are used in the spraying of trees?

A. That is true.

Q. 147. You compared that to the action of poisons on the human system, as to dilution?

A. I do not remember whether I made that latter statement or not.

Q. 148. You stated that a small dose of poison would be beneial rather than injurious, and if you gradually increased the rtion, it would become more and more injurious?

A. I do not remember to have said that.

Q. 149. Is that or not true?

A. That is — one sense of the word true, and in another sense is not true. It is not the quantity, it would depend on the rate f increase of the dose of the poison. Plants are just like human eings in that regard, you can start in with a man with a very mall dose, of almost any poison in the case of morphine, for in-ance, and gradually increase that dose to a very large amount.

Q. 150. You meant that and not gradually increasing the dose, ut where a small dose of poison in solution would not be injurious, large dose would be injurious?

A. That is true.

1403 Q. 151. You say that in some cases that the spraying of trees with these solutions injures the trees, but that the benefit derived by the tree, generally overcomes the injurious effect o the leaf?

A. That is true.

Q. 152. Is not it true, if that tree was sprayed continuously for some time, that the injurious effect to the leaves would, in time, overbalance, or out-weigh, the beneficial effect to the tree from the spraying?

A. I do not believe that is always true. It is a known fact, for instance in spraying with the Bordeaux mixture, a portion of the leaf may be injured by the copper, whereas the entire portion of the leaf, would not be and the other portions of the leaf which have not been injured would function more actively, store up more food while the rest would be killed, so that the average effect on the whole tree might be beneficial, and may so continue over a long period of time.

Q. 153. Could not the poison be applied in such quantity or such length of time that it would finally injure all the leaves to such an extent that the benefit derived would not equal the injuries?

A. Yes, because it could be sufficiently increased to equal the benefit.

Q. 154. Do you know, Professor, what percentage of sulphur dioxide is injurious to plant life?

A. The smallest percentage that the German investigations have found, within closed boxes on the European spruce, was one part to a million weight of air. This, however, is not true under natural conditions, and the more recent investigations have shown that out in the open a plant may stand a very much higher percentage of sulphur dioxide than that, so that the problem or question under the varying conditions in the open is very difficult to solve. 1404

Q. 155. What would you say would be the effect of one part of sulphur dioxide to 100,000 of air?

A. It would depend upon the plant upon which it acted, the frequency of the application, the condition of the atmosphere, and also with respect to light and moisture.

Q. 156. Would or not that be injurious to the forests, particularly as you found them in North Georgia?

A. I could not answer that question.

Q. 157. You were speaking on yesterday of the falling of the leaves. I will get you to state whether you stated in answer to General Fowler's question, that after the leaves were blighted, the tree would not grow, except if it had stored nutrient, is that true?

A. I do not remember to have said that.

Q. 158. Is that true?

A. It would depend on whether the leaves are entirely destroyed. If they are entirely killed, and there is no nutriment left in the tree, then,—well, even in that case, as I stated awhile ago in answer to a former question you asked there is the chlorophyll under the bark of the young twigs, that under normal conditions would be sufficient to store up food to start the growth of the tree.

Q. 159. Then you could not tell from the growth check from the annual rings when the trees were blighted, is that true?

A. Well, for a short period it might be true. But it would be almost certain to show a growth check in the year.

Q. 160. Sulphur fumes, of course, cause growth checks, sulphur dioxide, as you have it here?

A. Yes, that is so.

Q. 161. You spoke on yesterday of determining several
1405 questions from the facts of the smoke history as given you;
by whom were those facts given you?

A. Some of those facts I obtained from conversation with Mr. Reese, some with Mr. Renwick, the General Manager of the Ducktown Sulphur, Copper & Iron Company, some by correspondence with Mr. Miller, counsel for the Company, I do not remember whether I have gotten those statements from anybody—else,—there is Mr. M. O. Cate of Chattanooga, who investigated the Court records there and informed me of the date of the operation of the old Pittsburg Company, I got that through Mr. Miller, I believe I applied to him for the information direct.

Q. 162. Now, all these samples you got from trees, sections, cores, you say you found some that showed growth checks as far back as 1901?

A. Yes, sir.

Q. 163. Can you tell from, how far from the plant these trees were?

A. From the plants?

Q. 164. From the plant, I mean the plant of the Ducktown Copper Company.

A. In this case you mean?

Q. 165. Yes, on the one that you found in 1901?

A. I do not believe I found any nearer to Isabella than five miles.

Q. 166. That is the 1901 check?

A. Yes, I am not quite sure about that, however.

Q. 167. Will you tell me approximately how far from Isabella ou found growth checks in 1906?

A. From Isabella?

Q. 168. Yes?

A. That was in Georgia?

Q. 169. Yes?

406 A. I found, I believe the farthest point is where Tumbling Creek crosses the Georgia line, that is from Isabella. think that must be about nine miles from Isabella.

Q. 170. How far did you find the ones which had the growth hecks in 1908?

A. I have on my list here recorded one check that began in 908, and that was somewhere along the road between Copperill and No. 20 copper mine, if I can remember.

Q. 171. About what distance from the plant at Isabella, if you can approximate it?

A. I think about seven miles.

Q. 172. Approximately seven miles?

A. Approximately that.

Q. 173. You say that as a botanist your reason in determining on the death of plants, etc., both from the physiological condition of plants and the surrounding conditions in viewing the North Georgia district, you will take in to consideration the presence or the proximity of the copper plant of the Tennessee Company and the Ducktown Company, would you not?

A. I would.

Q. 174. The leaves which you submitted here as exhibits, did you examine them microscopically for evidences of fungous?

A. No, I did not.

Q. 175. What season of the year was that specimen Exhibit number 67 taken?

A. That was on the 18th of October.

Q. 176. When these last color photographs which you introduced, you did not give the general direction in which you went to take those, I will ask you what the general direction was,—the ones on which Mr. Reese was with you, the general direction

1407 in which you were traveling from Isabella?

A. That refers to the exhibits made in the Jack River country, does it not? Among the hemlocks and other timbers?

Q. 177. Yes?

A. I have marked it on the map, that is about,——

Q. 178. The direction, professor, not the distance?

A. Southwest.

Redirect examination.

By J. A. Fowler, Esq.:

Q. 179. You were asked something about what per cent of sulphur dioxide would injure plants, how were those tests usually made to determine what percent of solution in the atmosphere of a poison will injure plants?

A. The only investigations that I am familiar with have been made along that line, so far as I know have been made in inclosed glass boxes, and the plants growing within these boxes, and certain strengths solutions of sulphur fumes of the air have been introduced into these boxes and the observation made.

Q. 180. Then, is or not the application continuous?

A. Experiments have been made, I believe with continuous percentage of the sulphur fumes, mixture of sulphur fumes with air, and also experiments with repeated applications and removals of these percentages in the attempt to reproduce natural conditions.

Q. 181. Would or not the conditions in the open atmosphere as the forests around and near Ducktown, which have been exposed to these furnaces or the fumes of these furnaces be quite different to the conditions of a closed box?

A. They would.

Q. 182. Now, you have been asked if the growth of trees
1408 is not different on different sides, and different parts of the
tree in the same year, and your attention has been called to Exhibit 66, please explain that exhibit and state why you, if you have any reason, or knowledge as to it, why those rings are of different sizes in different parts of the tree?

A. The question as I understood it, had reference to whether a boring taken on different sides around the tree that had had its growth checked over a certain period by injurious fumes would show on each of these radii the relatively same percentage, or perceptibly the same percentage of reduction and my observation has shown that it will. And in this Exhibit 66, while it is true, as I have stated on cross examination that following in this hand sample any annual growth around, or at least some of the rings of growth around, there is as much as fifty per cent difference; at the same time, it shows on the same sample, that if an increment borer had been put in toward any radius from a point of the circumference, it would have shown similar results in judging the proportion of the reduction of growth.

Q. 183. Have you any idea why it is that the growth of a tree will be stunted on one side and normal on the other?

A. Well, there are mechanical conditions, perhaps, I had best modify the answer to this question just a little. I will change the answer a little, the proportional reduction would have been somewhat different, but the inspection of this sample shows distinctly that such borings would indicate at any single point, growth reduction beginning at the same year.

Q. 184. And extending for the same length of time?

A. Yes, let's see. (Examining exhibit.) Yes.

Q. 185. Does or not every part of that circumference show
1409 improvement during the years 1912 and '13?

A. Yes, sir, on this circumference, on this hand sample

Q. 186. Yes, sir.

A. On the greater part of this sample that is true, on the ex treme left there is a space, a short distance where that would not be true.

Q. 187. State whether or not on the extreme left the growth for 1912 and '13 is not greater than for 1911?

A. So far as I can determine with the lens, any point on the radius shown during 1912 and '13 show- an imporved growth over that of 1911.

Q. 188. I believe I asked you, Professor, if you have any knowledge of why it is that a tree will grow more on one side during a season, than on another?

A. Well, that is a question that is pretty hard to answerm from physiological examinations, or other indications that certain internal effects are responsible for it, more than external, there are two or three that may modify the growth, for instances, we find on a cross section of any tree taken near the ground, there is a gradual transition in conformity from the stem to the roots, in other words, the root deforms the stem, and the cross section is not circular, but going up two or three feet above the ground, we find, generally that they are circular in form.

Q. 189. Where a tree presents the appearance from the outside as being — well rounded, well developed tree, state whether or not it is generally true that the rings are regular on the inside?

A. Yes, sir, they are sufficiently regular to enable us to gain definite and reliable information on the subject of smoke damage with an increment borer, and that is the generally recognized tool in use in Germany for a number of years for that purpose.

1410 Q. 190. State whether or not you examined a great number of stumps which showed the entire cross section of the trees?

A. I did.

Q. 191. Did those entire cross sections that you observed indicate the same results that you have testified to here?

A. So far as I remember. I examined a great number of stumps with this specific end in view and satisfied myself that as a general rule there would be so little variation from this rule that it would be negligible when drawing my conclusions from a number of different sections.

Q. 192. You were asked what the effects on the tree would be if the leaves be killed, state whether or not the mere killing of the leaves once will kill the tree?

A. That generally speaking is not true, that is, it would not generally kill a tree, though there might be certain conditions under which it would kill a tree, that is, jowever, it would depend, of course, upon the agency which attacked the leavew and took them off, that is if a very severe fire struck the tree and destroyed the leaves, the whole tree might be killed.

Q. 193. Would not diseases that cause the leaves to fall off the entire tree kill the tree?

A. They might kill the leaves, the protoplasm we call it.

Q. 194. In order to kill the tree through the leaves, do or not the leaves have to be affected a number of times or the effect be applied continuously over a space of time?

A. Sulphur fumes?

Q. 195. Yes, or anything else that will kill the leaves.

A. Well, there might be different results, depending on the character of the injurious agency attacking the leaves. In the case of a leaf fungus, in the majority of instances there would be recovery after once destroying the leaves. In the case of destruction 1411 of the leaves by insects, a tree will generally recover. In some cases, however, among the conifers,—the cedar, for example,—destruction of the foliage one time by the bag worm may kill the tree; though that is, generally speaking, so far as my observation has gone, the result of several years' attack.

Q. 196. Is it or not a fact that there are some species of trees whose leaves are entirly consumed by worms every year, and they still live?

A. There is one tree in particular, the catalpa, which I have observed in a number of cases, to be almost constantly, year after year, defoliated by the action of the larve.

Q. 197. You have stated, professor, that the forests of North Georgia, would show up badly in comparison with a healthy forest, why is that, explain fully what you mean?

A. Well, I meant as compared with a forest properly cared for, that has not been attacked by fires, has not had improper lumbering conducted in it, and has not been mismanaged, for instance, I have seen, I noticed one exhibit here, I do not remember the number, hemlock forests near Clingman's Dome, Sevier County, that I noticed and introduced, merely illustrating that particular point in connection with my study in that country, comparing that forest with the forest of North Georgia, the North Georgia forest would show up badly.

Q. 198. What were the troubles in North Georgia which you had particularly in mind?

A. Of course, I did not study the conditions sufficiently to account for all of the troubles in North Georgia forests, but I had more particularly in mind the fires for instance in the Jacks River Country, and which was brought about by improper lumber- 1412 ing.

Q. 199. Did you have in mind the damage committed by sulphur fumes from 1906 on up?

A. In some portions of it that I saw yes.

Q. 200. State whether or not from the best you could judge, after making a careful investigation and examination of those bad conditions in the North Georgia forests, any resulted from sulphur fumes during the last two years?

A. I do not think it did.

Q. 201. Were you ever able to detect anything that indicated that they had resulted from sulphur fumes in the last two years?

A. I stated on direct examination, that I found some evidence of smoke injury on that trip of June 8th, I believe it was, on oak leaves not far from Epworth, and that is the only manifestation of smoke injury on a forest tree that I recall to have seen.

Q. 202. Was that just on the leaves only?

A. On several trees and also on some other oak trees, probably spanish oak.

Q. 203. You stated on one ocasion that the smoke was so thick it interfered with the taking of a picture, where was that?

A. At Quinn's orchard.

Q. 204. How near the Tennessee Company and the Ducktown Company?

A. About half way between I think, it is southeast from Isabella, 1¾ miles and 1¼ miles northwest of Copperhill.

Q. 205. From what direction did that smoke come, or did you pay attention to it?

A. I did not notice.

Q. 206. How long did it last?

1413 A. Well, we left, I could not say positively, it seems to me that we must have left Ducktown,—it must have been perhaps an hour.

Q. 207. That was not in Georgia?

A. Not in Georgia.

Q. 208. And I believe you state in October, wasn't it?

A. Yes.

Q. 209. Now, you were asked about the appearance of Sulphur dioxide as it came from the top of the furnace of Isabella, that is the Ducktown Company's furnace, do you know whether or not that is sulphur dioxide coming from the top of the furnaces?

A. I have reason to believe that it was, yes, sir.

Q. 210. What are the reasons?

A. Well, in the first place, in the neighborhood of the furnace I can smell the gas, and as a general fact, I know that some escapes from the smelters, and my understanding of the matter as a chemist, explains it, is that what enables us to see the gas escaping from the furnace is that the sulphur dioxide combines with the moisture of the air and makes small globules.

Q. 211. Is there any smoke coming out with it?

A. That is the smoke I have reference to.

Q. 212. I am asking about the smoke emitted in the consumption of the other ingredients of the ore, and in the fuel used?

A. I am not sufficiently familiar with that question to answer.

Q. 213. How close did you have to be to the furnace in order to smell the sulphur dioxide?

A. I remember to have smelled it on passing along the road, it must be probably 250 yards, and along the road of course, I am not certain as to the distances there, I think I have smelled

1414 it certainly as far as a half mile away.

Q. 214. From the Isabella furnace?

A. Yes, sir.

Q. 215. How close to the furnace does vegetation grow, that is apparently uninjured?

A. Well that I have spoken of on Capt. Knolde's permises, there is Bermuda grass growing in his yard less than 3-16ths of a mile away.

Q. 216. Is that very resisting to the fumes?

A. Yes, very resisting. There is also a kudzu vine on his porch, which is susceptible to injury, and which is practically uninjured as is shown in the photograph.

Q. 217. Is there or not vegetation right near the furnace?

A. That is the nearest I recall having seen.

Q. 218. Now, professor, you spent some weeks, altogether down in that section, did you?

A. Yes.

Q. 219. You have been all through Ducktown, in that vicinity, around those furnaces?

A. I have around the Ducktown Copper Company's furnace.

Q. 220. You have also been throughout that immediate section of Georgia, which is immediately south of the line there?

A. I have.

Q. 221. You have observed the Tennessee Company and operations of the Tennessee Company, and also of the Isabella Company to some extent?

A. Well, I do not know exactly what you mean by operations?

Q. 222. You have not gone through the plants to see how they operated?

A. I have not.

1415 Q. 223. But you have stood at a distance and noted the smoke coming from the stacks?

A. Yes.

Q. 224. And noticed the h-ights of the stacks?

A. I have.

Q. 225. And the height of the location of each furnace?

A. I have.

Q. 226. And observed their location with reference to the Georgia line, have you?

A. I have.

Q. 227. And also the locations with reference to the chains of hills in the vicinity there?

A. I have.

Q. 228. I wish you would state, professor, whether or not it is your judgment that such sulphur fumes as are emitted from the Ducktown Company's plant can do any damage to vegetation or forests in the State of Georgia?

A. I do not believe, that is as evidences there last season and this, from what I saw, I do not believe from a study of the situation, I do not believe that the Company is at present doing any damage in the State of Georgia.

M. Drake: We except to that as a conclusion and *is* an answer to the issue involved in this cause.

Exception overruled and appeal taken.

Q. 229. Under similar conditions could any damage result to the forests and other vegetation in the State of Georgia?

A. Under any did you ask?
Q. 230. Yes, under the same conditions?
A. I believe not.

Mr. DRAKE: I except to that as a conclusion and as an answer to the issue involved in this cause.

1416 Exception overruled and appeal taken.

Mr. HILL: In your exhibit No. 27, I will get you to state what stack is represented?

A. That according to my information is some machinery run in connection with one of the mines. I think they call it the hoist. I have never visited the mine there, but that is my impression, that is not the smelter at all, I am certain.

Further deponent sayeth not.

S. M. BAIN.

Sworn to before me this 22nd day of June, —.

C. A. HILL,
Deputy Clerk U. S. Dist. Court.

1417 In the Supreme Court of the United States.

No. 1, Original.

THE STATE OF GEORGIA
v.
TENNESSEE COPPER COMPANY and DUCKTOWN SULPHUR, COPPER AND IRON COMPANY, LIMITED.

It appearing that some mistakes were made by the stenographer in taking and transcribing the evidence of S. M. Bain, witness for the defendant Ducktown Sulphur, Copper & Iron Company, Limited, is it therefore agreed that the foregoing is a true and correct copy of the testimony of said witness, and that it may be substituted for the deposition of said Bain now on file in the office of the Clerk of the Supreme Court of the United States, and shall be printed instead of the testimony of said witness as originally filed.

(Sd.) WARREN GRICE,
Attorney General of the State of Georgia.

(Sd.) J. A. FOWLER,
Attorney for Defendant Ducktown Sulphur,
Copper & Iron Company, Limited.

1418 Supreme Court U. S., October Term, 1914.

Term No. 1, Original.

THE STATE OF GEORGIA, Complainant,
vs.
THE TENNESSEE COPPER COMPANY et al.

Corrected testimony of S. M. Bain and stipulation that same be substituted for testimony originally filed.
Filed December 17, 1914.

1419 In the Supreme Court of the United States.

Original. No. 1.

STATE OF GEORGIA, by Its Attorney General, JOHN C. HART,
vs.
TENNESSEE COPPER COMPANY and DUCKTOWN SULPHUR, COPPER & IRON COMPANY, LTD.

The Taking of depositions in this cause was resumed at the office of Honorable J. A. Fowler, Empire Building, Knoxville, Tennessee, on this June 26, 1914, at 10:30 a. m., in the presence of counsel for both sides.

Continuation of direct examination of SHERMAN REESE:

Examined by Mr. W. B. MILLER:

Q. Mr. Reese, have you present any map or maps that you know to be substantially correct, showing the location of the plants of the Ducktown Copper Company and the Tennessee Copper Company and the contiguity of the Georgia territory by counties and sections; if you have, produce them, please.

A. Yes sir, I have a map of the State of Georgia, together with Polk County, Tennessee.

Q. I understand that both these plants in the Ducktown Basin that is, the Tennessee and the Ducktown companies' plants, are in Polk County, Tennessee, in the southeast corner of Polk County?

A. Yes sir.

Q. I will get you to produce and file as Exhibit A to your testimony the map to which you refer as showing Polk County and the contiguity of Maury, Fannin, Union and Gilmer Counties, Georgia?

A. I do so.

Exhibit A.

1420 Q. There is a legend on this Exhibit A indicating that the lands in Georgia colored in yellow are the property of J. P.

Vestal, and those colored in red or brown are the property of J. H. Vestal; is that correct?

A. Yes sir.

Q. Are you entirely familiar with the location of those lands, and have you been over them repeatedly?

A. Yes sir.

Q. This map, as I understand, was made for use in the trial of these Vestal cases in the United States District Court at Chattanooga.

A. Yes sir.

Mr. DRAKE: I except to the above question as irrelevant and immaterial.

Q. I understand those two Vestal cases were tried together?

A. Yes sir; they were jointly tried—tried together, jointly, last fall, in the Federal Court at Chattanooga.

Q. And was there or not a final determination of the cases in the United States Court at Chattanooga this last spring?

A. Yes sir.

Mr. DRAKE: I except to the above because it is irrelevant, immaterial and impertinent. If, for any reason, it could be competent, a record in that case would be the best evidence.

Mr. MILLER: Notice is hereby given that a certified copy of the final judgment in that litigation is on file in this suit, having been filed some months ago as an exhibit to the affidavit of W. B. Miller.

Mr. DRAKE: I except to the introduction of any judgment or decree in the Vestal case in the District Court of the United States, because the same is immaterial, irrelevant and impertinent to the issue in this case.

1421 Q. During the conduct of the Vestal litigation, and for some several months before the same was finally determined, were you frequently over the properties claimed by J. P. and J. H. Vestal as shown on this map?

A. Yes sir. I had the properties surveyed out by a surveyor which took forty odd days to survey out, and I visited him every week.

Q. Were you not frequently over the properties that lay between these lands claimed by the Vestals, and the plants of the Tennessee Copper Company and also of the Ducktown Company?

A. I was.

Q. State whether you were over the territory of Fannin County, lying southward, southeastwardly, and southwestwardly from the plant of the Tennessee Copper Company for a radius of eight to twelve miles?

A. I was.

Q. I present you with another map of Fannin, Maury and Gilmer Counties, Georgia, which I will ask you to file as Exhibit B to your testimony.

A. I do so.

Exhibit B.

Q. The map Exhibit B discloses that there are white lines or tracings radiating from a point on Lot 186 in Fannin County, in various directions. I will get you to state, if you know, what those white lines represent, radiating from that point.

A. They represent each day's inspection of the inspecting party inspecting the lands of J. P. and J. H. Vestal.

Q. Whose lands are colored black on this Exhibit B?

A. J. H. Vestal's.

Q. And those in yellow, I understand, represent lands owned or claimed by the Tasker interests or Tasker Lumber Company?

A. Yes sir.

Mr. Drake: I except to the above because the witness had not stated that the lands belonged to them and the answer was suggested by Mr. Miller's question. 1422

A. (Cont'd.) It does belong to the Tasker Lumber Company.

Q. You see the legend on this map?

A. Yes sir.

Q. It has been partially torn off?

A. Yes sir.

Q. Is that legend correct?

A. Yes sir.

Q. Is there a man named J. M. Brooks who lived down there and owns the lands colored in yellow, or partly in yellow?

A. Yes sir.

Q. Now, how many days, probably, were you out with the inspecting parties that rode through those lands as shown on this map?

A. Well, I have been over those lands, the Vestal lands; the first year was 1910, and 1911, 1912 and 1913.

Q. Probably how many days altogether were you on it?

A. About a month and a half altogether.

Q. Were the witnesses Hughes, Parks, J. A. Miller and others, who have previously testified herein as forming members of an inspecting party that were over these lands of this territory, were those men all members of some one of your inspecting parties from time to time?

A. Yes sir.

Q. Were you with various parties that were out over these lands?

A. Yes sir.

Q. When out inspecting these lands, both as shown by these white lines on this map and otherwise, I will get you to state if you took observations of other lands as well as those shown on the map?

A. Yes sir, we taken observations of the whole country, as well as the Vestal lands.

1423 Q. What occasions have you had to visit the Southern and Southeastern territory as respects Copperhill, aside from the times when you were down looking over the Vestal lands?

A. I have had different occasions to visit that country, and have been through that country at different times.

Q. In recent years?

A. Yes sir.

Q. What is the condition of the territory southwardly and southeastwardly from Polk County, the same distance away as compared with the territory to the southwest?

A. Well, there has been some smoke damage south and southeast, more than there is southwest from Copperhill, further away.

Q. Probably how far does that zone of damage extend southwardly and southeastwardly from Copperhill?

A. Well, southeast, it would extend, I would think, some four miles.

Q. And southwardly?

A. Five miles, not so far south.

Q. About four or four and one-half or five miles to the southeast?

A. Yes sir.

Q. And southwardly from Copperhill what?

A. It would be about a mile or so less.

Q. What section, if you know, did this man Vestal live on, that is, the principal plaintiff in one of those Vestal cases—what lot of land?

A. He lived on Lot 77. No, I guess he lived on 75. I will answer that, 75 anyway; I think that is right.

Q. Whether it is 75 or 77, it lies south of the Tennessee Copper Company's works?

A. Yes sir, it lies south of the Tennessee Copper Company's works.

1424 Q. What distance away does he live from the Tennessee Company's plant?

A. About two and one-half miles.

Q. Is there any timber on the Vestal properties that lies in lots 76 and 77?

A. Yes sir.

Q. Was or not Mr. Vestal engaged in growing crops, and did he have orchards on those lands?

A. He had gardens and patches of corn; not considered to be forming, but he had gardens and orchards.

Q. Are you acquainted with the territory in Fannin County that is claimed by the Shippen Brothers Company?

A. Yes sir.

Q. What direction do these properties lie from Copperhill?

A. They lie south, and southwest and southeast.

Q. Have you been over those properties in recent years?

A. Yes sir.

Q. How extensively?

A. Well, quite extensively. I made a thorough inspection of all those properties in 1911.

Q. State whether or not the Shippen Lumber Company, or Shippen Brothers Lumber Company claim extensive properties in that territory?

A. They do.

Q. Were you over those properties with members of an inspection party in 1911?

A. Yes sir.

Q. Can you give us the names of some of those gentlemen who composed the inspection party and visited these Shippen lands southwardly and southeastwardly from Copperhill?

A. Yes sir. I was on different trips on this inspection. One trip I had Mr. Maughan.

Q. That is Squire Maughan who has testified in this case?

A. Yes sir. Mr. Shippen, Mr. Witt, Mr. Clayton, Mr. Higdon and Mr. Stewart.

Q. Is that the witness Stewart who has testified in this case?

1425 A. Yes sir. On another trip we had Mr. Payne, Mr. Cate, Mr. Maughan, Mr. McNabb, Mr. Parks, Mr. Woody, Mr. Dalton and Mr. Shippen.

Q. Have Dalton, Payne, Maughan and Parks all testified in this case?

A. Yes sir.

Q. Now, state whether Mr. W. H. Shippen, who claimed an interest in and was president of the Shippen Brothers Lumber Company, was present during the taking of the testimony in the case of Shippen Brothers Lumber Company vs. Ducktown Copper Company pending in the United States District Court at Chattanooga?

Mr. Drake: I except to the question because the answer would be immaterial and irrelevant.

A. He was not present all the time, but was part of the time.

Q. Did he testify as a witness at considerable length in that case?

A. Yes sir.

Q. I will get you to state if you heard him testify what sum of money was paid to his company by the Tennessee Copper Company for the privilege of flooding the territory down there with smoke?

Mr. Drake: I except to the testimony because the answer must be irrelevant, incompetent and immaterial.

A. Now, I am not sure about Mr. Will Shippen, what he said. Mr. Frank Shippen was asked the question, and he refused pointblank to answer it until an order was issued by Judge Sanford for him to answer the question. His answer was that $50,000 was paid by the Tennessee Copper Company. But Mr. W. H. Shippen, I don't know what his answer was; I don't know whether he answered the question or not.

Mr. Drake: I except to the above answer because it is irrelevant and immaterial.

1426 Q. Has Mr. W. H. Shippen been present during the giving of your deposition here in Knoxville, and was he present during the taking of the testimony in this cause at Chattanooga last week?

A. Yes sir.

Mr. Drake: I except to the above question and answer, because immaterial.

Q. Was he or not in conference with counsel representing the State of Georgia during the time these depositions were being taken?
A. He seemed to be all the time, yes sir.

Mr. **Drake**: I except to that for the reason that it is irrelevant and immaterial.

Q. By what attorney or counsellor was Mr. Shippen and his interests represented in that litigation in the United States Court?
A. Judge Gober.

Mr. **Drake**: I except to above question and answer, because irrelevant and immaterial.

Q. State whether or not Mr. Shippen and his brother Mr. Frank Shippen, the treasurer of Shippen Brothers Lumber Company, were asked as to their reasons for demanding that the plant of the Ducktown Copper Company be closed and their willingness that the Tennessee Copper Company should operate.
A. Their reasons?
Q. Yes. I ask you if they were asked—if that question was put to them?
A. It was.

Mr. **Drake**: I except to the above question and answer, because irrelevant and immaterial.

Q. State whether or not, pending the taking of proof in that case, any threat or menace, or suggestion, was put forth that if their demands were not met by the Ducktown Copper Company, that the State of Georgia would be induced to demand that an injunction issue in this present case, and if so just tell what was
1427 said, and by whom?

Mr. **Drake**: I except to the above question, because irrelevant and as a reflection on the State of Georgia, and the Attorney-General of that Commonwealth.

A. Do you mean what the counsel or Mr. Shippen said?
Q. Yes, what counsel said in his presence during the taking of that proof?
A. I don't know whether I can give the exact words that were said by Judge Gober during the taking of these depositions. It was something like this: As well as I remember, he said there never had been an injunction issued until now, and intimating he was going to ask for an injunction, as I understood it, and Mr. Miller's reply to him was, as I remember it: Very well, Judge Gober, you have threatened the Ducktown Sulphur, Copper & Iron Company with an injunction. I court the day and hour that you bring it. So go ahead with it.

Mr. **Drake**: I except to the answer as being irrelevant and side bar remarks, only made in trial of another law-suit that is in no way connected with this suit, the parties not being the same in either instance, and the answer could in no way aid the court in arriving at the truth of the issue in this cause.

Q. It has been claimed that the plant or stack of the Ducktown Copper Company is visible from the railroad that passes through the Ducktown Basin; I will ask you to state whether or not that is true, Mr. Reese.

A. There is no place from the L. & N. Railroad that you can see the Ducktown Sulphur, Copper & Iron Company's stack from the time—at no point—I want to answer the question "at no point."

Mr. **Drake**: Read the question.

(Question read.)

A. (Cont'd.) No, it is not true. I would rather answer it that way.

1428 Mr. **Drake**: I except to the question and answer, in so far as it shows that the State of Georgia has made any such claims in this cause. I do not understand it has done so.

Q. What is the nearest railroad station to the plant of the Ducktown Copper Company?

A. Well, Ducktown Station and Copperhill are about equal, the same.

Q. How far is it from Ducktown Station, or the Station on the railroad that is called Ducktown, over to the village that is known as Ducktown, Post Office?

A. About two miles.

Q. How far is it from Ducktown Station on the railroad over to the plant of the Ducktown Copper Company at Isabella?

A. About two miles and a half—I mean three miles and a half.

Q. And how far is it from Ducktown Post Office to the plant of the Ducktown Copper Company?

A. About a mile and a half.

Q. State whether there are several stacks in the Ducktown basin and near the plants of these two companies that emit smoke, and if so name some of the stacks from which smoke is emitted, independent of and aside from the smelter stacks.

A. Do you mean where it sends out coal smoke?

A. Where it sends out any kind of smoke that discolors the atmosphere and anybody can see from a distance that that would be so on a hill down in Georgia.

A. Well, Isabella has one smoke stack from the furnaces—the Ducktown Sulphur, Copper & Iron Company. Then it has various different smoke stacks from the boilers, perhaps half a dozen, at Isabella; it also has some at the East Tennessee.

Q. The East Tennessee mine?

A. The East Tennessee mine from the boilers, and Burra Burra at the Tennessee Copper Company, they have smoke stacks.

Q. Is that an ore mine—Burra Burra; that is an ore
1429 mine?

A. London mine, that is the Tennessee Copper Company's mine; McPherson mine, the Tennessee Copper Company's mine, and Polk County mine of the Tennessee Copper Company, and Mary mine of the Ducktown Sulphur Copper and Iron Company, all send out coal smoke from the boilers of the power plants.

Q. Does that smoke issue in clouds from the tops of the stacks, in all instances?

A. A good deal of smoke comes out from them.

Q. I mean, where is it expelled; where is it emitted; where does it go out from?

A. It goes out from the tops of the stacks.

Q. Are they sheet iron stacks?

A. Yes sir.

Q. State whether or not those various stacks, that is, the boiler stacks, emit smoke constantly?

A. Yes sir.

Q. Is that smoke just ordinary coal smoke?

A. Ordinary coal smoke, yes sir.

Q. Where are the fumes that are harmful to vegetation emitted; that is, from how many stacks at the plant of the Ducktown Copper Company?

A. One stack.

Q. Did you know that territory around the stack of the Ducktown Copper Company, and around its plant and smelter, before the acid plant was built? Were you intimately acquainted with it?

A. Yes sir.

Q. Were you there while the acid plant of the Ducktown Copper Company was being built in 1908?

A. Yes sir, I was there.

Q. Did you see the operations daily as they went forward, while the acid plant was being built?

A. Yes sir.

Q. I will present to you a number of what are termed "progress photographs", that is, they are supposed to be photographs of the operations as they progressed in the building of this acid plant, and I am going to ask you to number them, commencing with exhibit 1, and I will get you to tell me in each instance what you know of these photographs. I present you first with a photograph which I file as exhibit No. 1. State what that is, if you know what that photograph represents. 1430

Exhibit No. 1.

A. That represents part of the acid plant in construction, the present acid plant in construction.

Q. That was as it was being built, before it was put in operation?

A. Yes sir.

Q. I present you another one which I identify as Exhibit No. 2; say if it is a photograph of this plant, another view of the plant under construction.

Exhibit No. 2.

A. Yes sir; that represents part of the acid plant under construction.

Q. I show you another photograph, Exhibit No. 3, and will ask you if it shows another view of the construction work as the plant was being built.

Exhibit No. 3.

A. Yes sir, that represents part of the acid plant under construction.

Q. I show you Exhibit No. 4, and will ask you what it represents?

Exhibit No. 4.

A. This photograph represents part of the acid plant under construction.

Q. What does Exhibit No. 5 here shown you, represent?

Exhibit No. 5.

A. This photograph represents the acid plant under construction.

Q. And what are those tanks?

A. Those are wood tanks for the furnaces, the water tanks of the Ducktown Sulphur, Copper & Iron Company.

1431 Q. When were they built as respects the building of the acid plant?

A. They were built—Oh, I don't know when the company first went in operation; perhaps right at the start, at the first operation of the furnace.

Q. I show you exhibit No. 6, and ask you what it represents?

Exhibit No. —.

A. This photograph represents part of the acid plant under construction.

Q. And discloses also those water tanks?

A. Yes sir.

Q. State what Exhibit No. 7 represents?

Exhibit No. 7.

A. This photograph represents part of the acid plant under construction, also the water tanks for the furnace.

Q. What does Exhibit No. 8 represent?

Exhibit No. 8.

A. This photograph shows a part of the acid plant under construction, also water tanks and stack of the furnace—the smoke stack of the furnace.

Q. There seems to be two stacks there, one taller than the other.

A. One is the coal stack for the boilers, the power plant, the near one, the small one is from the power plant at the power house.

Q. The acid plant was not in operation at the time these photographs were taken?

A. No sir.

Q. What does Exhibit No. 9 represent?

Exhibit No. 9.

A. This photograph shows the furnace and power house and acid plant and chamber buildings of the Ducktown Sulphur, Copper & Iron Company's plant.

Q. Was that before the acid plant went into operation?

A. Yes sir, during the construction of the acid plant.

Q. Now, which is the stack in that photograph from which the fumes were emitted at that time?

1432 A. The tall stack, the tallest stack in the left-hand foreground is the stack from the furnace.

Q. And what portion of the acid plant is that which appears to be completed in that photograph?

A. The chamber building.

Q. And what portion of it is that which is not completed, the skeleton or frame work?

A. That is the Glover tower building.

Q. Where are the fumes first received in the making of sulphuric acid as the plant is operated now?

A. In the Glover tower building, in the Glover towers.

Q. What is done with the product after it is received in that tower?

A. It passes from the Glover towers into the chamber buildings.

Q. That is being built?

A. That is being built on the right hand side of this photograph.

Q. How long is that chamber, the chamber building that you speak of?

A. 480 feet, is my recollection.

Q. The product, after passing through the tower building, is conducted over to the chamber portion of the structure, and then what is done with it?

A. It passes on from different chambers through this chamber building—there are two of them—and passes back into receiving tanks, acid tanks, which are now shown, directly beyond the left-hand building there in that photograph.

Q. Then the product first enters the Glover tower structure, and after that is conducted into the chamber acid plant for a distance of something over four hundred feet, traveling through various chambers, and then returns?

A. Returns to another building equally the same length, and goes into the receiving tanks.

1433 Q. And from those tanks it is drained into the railroad tanks or cars that carry it away.

A. Yes sir.

Q. I show you exhibit No. 10. I will ask you what it represents?

Exhibit No. 10.

A. This photograph shows the acid plant, also the bunkers of the furnaces and furnace stack and boiler shop of the Ducktown Sulphur, Copper & Iron Company.

Q. That is the Glover tower that is under construction?

A. Yes sir.

Q. I show you another photograph that is, as I understand a view of the same portion of the building under construction; I will ask you to file it as Exhibit No. 11.

Exhibit No. 11.

A. I do so.

Q. Which is the smelter stack as shown in that last Exhibit No. 11.

A. The taller stack over the building lengthways of this picture, which is the boiler shop, the taller stack is the furnace stack.

Q. There appears to be some smoke escaping from various points in the left of the picture, different colored smoke; what character of smoke is that?

A. That is smoke from a locomotive standing on top of the bunkers, ore bunkers.

Q. They only escape, the fumes, there; the only stack is the small stack, as I understand it?

A. Yes sir.

Q. That was before the acid plant was put into operation?

A. Yes sir.

Q. I show you photographs which I file as Exhibits Nos. 12 and 13 respectively, and ask you what they represent; Exhibit 12 shows what?

Exhibit No. 12.

A. It shows the Glover tower building or the acid plant under construction.

1434 Q. The frame work up?

A. Yes sir, the steel frame work.

Q. That is the steel frame or the skeleton work, as I understand?

A. Yes sir.

Q. And what does No. 13 represent?

Exhibit No. 13.

A. The same building under construction.

Q. A little further advanced than in Exhibit No. 12?

A. Yes.

Q. What does No. 14 represent?

Exhibit No. 14.

A. This photograph shows the smelting plant, furnaces and acid plant of the Glover tower building in the background, of the Ducktown Sulphur, Copper & Iron Company.

Q. Which is the smelter stack as shown in that photograph?

A. The larger stack in the center of the photograph.

Q. What do the other stacks there represent?

A. Three of them represent coal stacks from the boiler power plant; the smaller one carries steam away from the slag pit.

Q. In other words, none of those stacks emit fumes that are harmful except the smelter stack?

A. Nothing but the large stack.

Q. What does Exhibit No. 15 represent?

Exhibit No. 15.

A. This photograph represents one corner of the acid plant, of the Glover tower building, also bins where nitre is stored.

Q. Of what material is this structure, the one shown on Exhibit 15?

A. Concrete.

Q. Of what material is the Glover tower, the outside, since it is completed.

A. Brick; the base is of concrete, but then the structure proper is brick.

Q. I show you Exhibit No. 16, and I will ask you what it is a view of, or what it shows?

Exhibit No. 16.

1435 A. This photograph shows the chamber buildings of the acid plant of the Ducktown Sulphur, Copper & Iron Company.

Q. Does that appear somewhat as they do not, from the same point where this photograph was taken?

A. Yes sir, that photograph must have been looking towards the north—northeast.

Q. Supposed to have been taken just about the time the chamber acid plant was completed?

A. I could not say as to that.

Q. I show you Exhibit No. 17 and ask you what it is?

Exhibit No. 17.

A. This photograph represents a view of the acid plant and smoke stack of the furnace of the Ducktown Sulphur, Copper & Iron Company.

Q. There are more stacks than one in this picture; what do they all represent?

A. The one in the center on the right represents the smoke stack of the furnace; the two on the left hand side of the picture represent the coal stacks from the power plant.

Q. By the smoke stack from the furnace, do you mean the smelter stack?

A. Yes sir.

Q. What is the relative or comparative size of the furnaces of the Tennessee Copper Company, as compared with the furnace or furnaces of the Ducktown Company?

A. I could not answer that question accurately, but the Tennessee Copper Company are a great deal larger than those of the Ducktown Sulphur, Copper & Iron Company.

Mr. Drake: We except to that, as a conclusion of the witness, without facts upon which it is based.

Q. Have you seen the furnaces of the two companies—have you seen them both?

A. Yes sir.

Q. How many times larger would you say are the furnaces of the

Tennessee Copper Company than the furnaces or furnaces of the Ducktown Company?

1436 A. Three or four times.

Mr. Drake: We except to that as a conclusion.

Q. State whether you, when you are at home, have frequent occasion to see the stack of the Tennessee Copper Company?

A. I do, every day when I am at home.

Q. State whether there is ever a time when its plant is being operated that fumes are not being sent out in volumes from the top of that stack?

A. No sir.

Mr. Drake: We except to that as being immaterial and irrelevant.

Q. Where were you on Thursday next after the 8th of June, 1914, and what opportunity if any did you have for observing the operations of the Tennessee Copper Company at that time?

A. I went from Ducktown to Copperhill and went over in the edge of Georgia to Fighting Town Creek and about one mile into Georgia, and turned back to Copperhill and from there back to Ducktown, and then returned to Copperhill from Ducktown that night and stayed in Copperhill that night.

Q. How many furnaces was the Tennessee Copper Company operating on that day, Thursday, and that night?

A. My best judgment is they were operating at least four; possibly five.

Mr. Drake: We except to the above as being uncertain, indefinite, and a conclusion.

Q. On what fact or facts do you base that judgment; what appearances?

A. Well, you could see the stacks from each furnace and see the smoke coming out, and tell there was a blast on the furnace by the pressure of the smoke, out of four stacks; then there was a large opening in the roof of the building which I would say approximately is perhaps thirty feet square, a great volume of smoke was escaping through this, I don't know what that meant, whether it meant the furnaces, or whether—I take it it represents the 1437 furnace, but I don't know it really was the furnace; I couldn't say; I take it they were running not less than four and perhaps five.

Mr. Drake: We except to the above as a conclusion, upon the ground that the witness has not stated facts sufficient upon which to base the conclusion, he not having qualified as an expert who could calculate from the draft of the furnace, or the amount of smoke from the furnace stack, the number of furnaces being run.

Q. State whether the fumes from the various furnaces of the Tennessee Copper Company are conducted into a tall stack?

A. Yes sir, I suppose they are. I don't really know a great deal about the construction of the furnaces; I think they are, though.

Q. What is the apparent connection; how are they conducted?

A. Well, the apparent connection is that all the smoke is carried into the large flue and into the tall center plant.

Q. Carried into there by means of what?

A. From the flues.

Q. They carry it from the various furnaces into the tall stack?

A. Yes sir.

Q. Some mention has been made by some of the witnesses of a cintering plant being operated by the Tennessee Company about this same time. Do you know where that cintering plant is located with respect to the stack, or what connection there is from one to the other?

A. No sir, I don't know. I never saw the cinter plant. I have an idea what it is, but I don't know what it is.

Q. Well, I will get you to state the volume or extent of the smoke that was being emitted by the Tennessee Company's plant and stack on Thursday next after the 8th of June, at the time you think there were four or five furnaces in operation.

A. Well, there was a great volume of smoke coming out of the stack, and also escaping from the smaller stacks in the
1438 furnace, just about the same that they were on the 8th. On the 8th I was also there a day, and there seemed to be about the same amount of smoke escaping as there was on the 8th.

Q. State what effect the operations seemed to have; I want you to state especially as to the smoke that was generated, and where it was deposited; what became of it?

A. Which, on the 8th?

Q. Yes, the 8th and the 11th, the intervening time, if you know.

A. Well, I don't know all about it, all the intervening time. On the 8th it seemed that the volume of smoke was turned in a northerly direction that morning.

Q. What effect did that have on the Ducktown basin?

A. It filled up the basin.

Q. With what?

A. With smoke.

Q. Could you see the smoke?

A. Yes.

Q. See it drifting away from that stack and settling in the Basin?

A. Yes sir.

Q. On the 11th what about it?

A. I was going to finish up on the evening of the 8th; the air currents were carried in a due south direction into Georgia.

Q. The fumes from this Tennessee Copper Company's plant were carried then to what extent?

A. I don't know how far they went, but the great volume of it went, it looked like to me, for miles that evening.

Q. What direction?

A. Nearly a south course.

Q. Into the State of Georgia?

A. Yes sir.

Q. What about it on the 11th?

A. On the 11th it was also going in a southeast course.

1439 Q. In considerable quantity?

A. There didn't seem to be as much in the evening as there was on the 8th.

Q. (Examination continued by Mr. J. A. **Fowler**:) Mr. Reese, were you along with Professor Bain on any of his trips when he took pictures of and took blocks from trees?

A. Most of them, I suppose.

Q. Do you know of Professor Bain taking pictures when you were not present?

A. No sir, I have been with him every trip.

Q. You were with him when he took those pictures through north Georgia?

A. Yes sir.

Q. You were also with him when he took the pictures in Ducktown?

A. Yes sir.

Q. Were you present when Professor Bain gave his testimony?

A. Yes sir.

Q. Did you see the pictures when they were introduced as evidence?

A. Most every one, yes sir.

Q. Did you recognize the pictures?

A. Yes sir.

Q. From whom did Professor Bain get information as to the particular spots where those pictures were taken?

A. I gave it to him.

Q. Are you familiar with that locality?

A. I am.

Q. Do you know the various people who live in that vicinity?

A. Yes sir.

1440 Q. Did you tell him whose homes you were near when the pictures were taken?

A. I did.

Q. State whether or not you told him the exact truth with reference to that?

A. I did.

Q. Did you hear the Professor's testimony as to the locations of the various people where those pictures were taken?

A. Most all of them. I possibly did not hear every bit of it, but I heard most all of it.

Q. State whether or not the Professor's testimony with reference to those localities and the objects represented by the pictures was correct?

A. That is true, yes sir.

Q. Were you present when he blocked a number of the trees?

A. Yes sir.

Q. Were you also present when he made a number of borings in trees?

A. Yes sir.

Q. Did you hear his testimony with reference to the location of those various trees?

A. Yes sir.

Q. Was that correct?

A. It was.

Q. Did you give him the information as to the locality where those trees were standing?

A. I did.

Q. Through what section of country did you and Professor Bain pass?

A. We traveled over North Georgia, and Polk County, Tennessee, and some parts of western North Carolina—Cherokee County.

Q. Now state whether in taking those pictures it was your purpose to give a fair representation of the conditions in North Georgia?

1441 A. It was.

Q. Did you specify the most favorable places to take pictures from?

A. No sir; I only stated the place, where we were at, to Professor Bain, and he sought his own place himself; I didn't have anything to do with dictating the place or the object of the picture.

Q. State whether or not the Professor sought the most exposed or the least exposed place?

A. He taken the most exposed for smoke damage in most of the cases.

Mr. Drake: I except to that as a conclusion.

Q. Were or not the places pictures of which he took, among the most exposed places there were of smoke from the furnaces?

A. Yes sir.

Q. How was it with reference to the trees from which he took blocks, and those in which he made borings?

A. It was the same thing with the tree samples that he taken; he seemed to try to take them from the most exposed to the smoke, or to the furnaces.

Mr. Drake: We except to that as a conclusion of the witness.

Q. (Cont'd by Mr. W. B. Miller:) I will ask you whether or not in taking those photographs by Professor Bain that were taken near the Georgia line, you know whether those were taken by him, those views, pursuant to request of the Ducktown Company's counsel that the photographic views be taken close in and where the territory was exposed.

A. That is my understanding, yes sir.

Mr. Drake: I except to that as leading, and as a conclusion, and as a supposition.

Q. Was that the theory on which the views were obtained, namely, that they were to be taken close in?

A. Yes sir.

1442 Q. Now suppose that you and Professor Bain had gone out a mile or two further; what if any difference would there have been in conditions?

A. They would have been as green as it would be here in Knoxville, or anywhere else far away from Ducktown.

Q. Were you with Mr. W. M. Bowron, who has testified in this case, when he made some observations with a chemical apparatus with a view to determine the smoke zone or limit as the effective operations of the Ducktown Copper Company?

A. I was.

Q. I show you a map which I file as Exhibit C to your testimony, and will ask you what the yellow and red lines that are solid on that map indicate, and also the dotted black lines?

Exhibit C.

A. The yellow lines represent a trip that we made on April 2nd, 1913; then the red lines represent another trip that we made I think the year before that. It is not marked here, and I have not got any notes with me on that, I don't know, but I think the year before, and the black line, I don't know what it represents.

Q. At the time you and Professor Bowron traced the route shown by those red and yellow lines, did he have with him this chemical apparatus about which he testified in chief?

A. Yes sir.

Q. And did he or not test for smoke along the lines of that?

A. Yes sir.

Q. State whether or not the Tennessee Copper Company was closed at that time?

A. It was on April 2nd, yes sir.

Q. Now I show you a map which I file as Exhibit D, and I will ask you what it represents, or what the black solid tracings on that map represent—the pen and ink tracings.

Exhibit D.

1443 A. The large outer black line represents what is known as the Mayfield Commission in 1901, locating the smoke zone at that time.

Q. And those lines that penetrate the outer smoke zone extending from Isabella in various directions, what do they indicate—the black lines?

A. They represent the starting point and return of this Commission, in and out of the Basin, locating this Mayfield line.

Q. The line of the smoke zone?

A. The line of the smoke zone.

Q. Did you, in connection with Mr. J. A. Miller, and Mr. Parks, witness Parks, and anybody else, visit any counties of Tennessee or North Carolina during recent months, to ascertain as to the death rate of timber in zones far away from the Ducktown Basin?

A. Yes sir, I did.

Q. I will get you to state whether or not on those trips you were in Overton, Morgan, Fentress, Roane, Cumberland, and Putnam counties, Tennessee?

A. Yes sir, and Scott; yes sir, I was in those counties.

Q. State whether there are large tracts of forests in all those counties?

A. Yes sir, there has been very large forests; the timber has been very large and good in most of those counties.

Q. What did you find as to the death rate of the timber in recent years or months in those counties?

A. Very great; the death rate was very great in all those counties.

Q. How did it compare with the death rate of timber as shown in the North Georgia section after getting out four or five miles from Copperhill?

A. A great deal worse; a great deal.

1444 Q. That is the death rate was greater in these outside counties than in North Georgia?

A. Yes sir; sometimes ten times as great.

Mr. Drake: I except to the question and the answer, as being irrelevant.

Q. Did you or not in recent months also visit any forest section of North Carolina, and if so, what counties?

A. I did; I visited Mitchell County and Yancy County, and McDowell, Buncombe, and I don't know the other counties betwixt Asheville and the state line; I really don't know what counties they are.

Q. Well, state whether there were large timbered tracts in all those counties?

A. There were.

Q. What did you find to be the normal death rate of timber there as compared with what it is in the North Georgia section?

A. A great deal worse than it was anywhere in North Georgia or Polk County.

Mr. Drake: I except to the answer as being irrelevant.

A. At the time that you were out with Mr. Bowron on these trips when he made those observations as traced on your maps, was the plant of the Ducktown Sulphur, Copper & Iron Company operating normally and usually?

A. Yes sir.

Cross-examination.

By Hon. J. A. Drake:

Q. Those photographs you filed as exhibits this morning, one to seventeen, when were they taken?

A. I don't know.

Q. And by whom?

A. I don't know.

Q. You did not see them made then?

A. No, sir.

1445 Mr. **Fowler**: Who did take them, and when?

The **Witness**: I don't know who; I never saw them until Mr. Miller showed them to me.

Q. I will ask you if they are not on a very small scale.

A. Yes sir, they are on post cards.

Q. Do you know why the company has not offered some photographs of the plant since those acid chambers were put in operation, showing the character and appearance of that big acid smoke stack?

A. No sir.

Q. It is a fact that there is none filed as an exhibit?

A. Not that I know of.

Q. You stated on your original examination this morning that you had been on all the photographing trips with Professor Bain, I believe?

A. Yes sir.

Q. When were those different trips made?

A. Well, I don't know that I can give you the exact dates of every one of them. Do you want me to try to give them?

Q. And how many of them were there, also?

A. The first one was in September, 1913, the first trip. I guess the next one was in January, 1914; and the next one was in February, 1914, and the next one was in March, 1914.

Q. Is that all of it?

A. No sir, not yet. Wait a minute: The next one was in April, 1914; and the next one was in June, 1914.

Q. What time in September was that first trip made?

A. September 16.

Q. What time in June of this year was the last trip made?

A. I wound up June 10th; I commenced on the 5th and wound up on the tenth.

Q. Did Professor Bain take any pictures on any of his visits down there from September 1913, to June, 1914, of the plant or smoke stack?

A. Not all of it.

1446 Q. He took pictures, I believe, from your former statements in almost every direction from the Ducktown plant, did he not?

A. Yes sir.

Q. He took various pictures of the superintendent's houses, did he not?

A. He taken two of Mr. Renwick's residence, and one of Lamereaux.

Q. You took two of Mr. Renwick's, and one or two, which was it, of Mr. Lamereaux?

A. One.

Q. Did you take any other pictures of operatives or employees of the company around there?

Q. Yes, sir, I taken one of Mr. Taylor, who is mine engineer.

Q. Why didn't you take a picture of the plant and the smoke stack?

A. Well, I don't know the reason why we did not at all.

Q. A picture of that plant and smoke stack would have shown the smoke as it boiled out of the top, would it not?

A. Yes sir.

Q. And have you not got pictures of that plant showing just how it looks?

A. Well, I have not.

Q. Hasn't the company?

A. I don't know.

Q. That you have seen?

A. I don't know.

Q. You have not any such picture that you could furnish me, that I could look at, have you?

A. No sir; no sir.

Q. How far into Georgia did you and Professor Bain go on your tour of inspection and photographing?

A. Which trip?

Q. On any of them, the furthest point?

1447 A. The furthest point? Well, in September—let's see! I will give you the date; On the 17th of September, 1913, we left camp on Jack Creek and made a tour down through Maury County and Gilmer County, and wound up at Ellijay, taking pictures all along the route, and taking specimens of leaves and tree growth.

Q. Now on that trip you were southwest at all times from the Ducktown plant, were you not?

A. No, not at all times. We wound up about due south of the Ducktown plant.

Q. But when you were in Maury County, wasn't you over behind a tier of mountains from the Ducktown plant?

A. Yes.

Q. And wasn't that in a country that never has complained of much smoke damage?

A. I never heard of it.

Q. And you got the specimens on this trip then on that route?

A. We taken specimens and pictures all along the route. We made this trip for comparison with the conditions immediately around Ducktown; also in the Jack River country—to compare conditions.

Q. You took those pictures and have exhibited them, Professor Bain has, has he not, and have you not helped to identify them in this record?

A. No sir, I don't think we have put any of those pictures in this record.

Q. And the specimens, you took specimens on that trip of wood and of leaves?

A. Yes sir.

Q. And Professor Bain has filed specimens of wood and of leaves here in this record, has he not?

A. I don't remember whether he put any of those wood samples and leaves, or pictures, either, in this record that we taken commencing on September 17th.

1448 Q. I believe you, Mr. Reese, have been retained in the room by the copper company to aid them in the conduct of the examination of witnesses, have you not?

A. Yes sir.

Q. And you have heard all the testimony?

A. I have heard part of it. I have not heard all of it, possibly.

Q. Did you hear practically all of Professor Bain's the other day?

A. Practically all of it, yes sir.

Q. You know he did file a great many exhibits?

A. Yes.

Q. And you saw them and know the points at which they were taken?

A. Yes sir.

Q. Is that trip indicated by one of those lines that you have on one of your exhibits?

A. He has a map he filed as an exhibit to his testimony, indicating with marked lines.

Q. And that shows on his map?

A. Yes, sir.

Q. Then where did your next trip take you to?

A. The next trip I took with Professor Bain?

Q. Yes sir?

A. Well, I will have to refer to my notes.

Q. Can you remember without referring to your notes?

A. I don't know whether I can or not. I think the next trip was a trip into North Georgia, Mineral Bluff, Blue Ridge, and Fannin County.

Q. Mineral Bluff is up the Tocoa River a little from Copperhill, east of it, isn't it?

A. Yes sir.

Q. And Blue Ridge is a little more south than east, I believe?

A. Yes sir.

1449 Q. Then the next trip you took carried you where?

A. The next trip: We made a trip into the Cumberland Plateau, over about ten or twelve counties in middle Tennessee.

Q. I had reference, Mr. Reese, to North Georgia.

A. Well, I was taking the next trip. The next trip into North Georgia would be—now, really, I think maybe I made a mistake a while ago—I think we made a trip perhaps in November into North Georgia, before we made this trip; I returned to Mineral Bluff and Blue Ridge, which taken in practically along the Georgia line from Tumblin Creek to about three miles east of Copperhill.

Q. Well, now, when was the trip made that you speak of that you probably made in November?

A. That is the one I speak of.

Q. At Mineral Bluff?

A. In about three miles east of Copperhill.

Q. When was that trip made?

A. That was some time, I think, in either October or November.

Q. When was the next one made?

A. That would be the one I had just outlined before; I went to Mineral Bluff and Blue Ridge; that would be in January of this year.

Q. And the next one, now, when was it and where did it carry you?

A. Do you want me to confine myself to Georgia?

Q. Yes, that is what I mean; we are talking about Georgia now, Mr. Reese.

A. Well, the next one would be in March, on Hothouse Creek, in Fannin County, in March; March 3rd, 4th, and 5th.

Q. And the next one, I believe you said was in April; where did that carry you?

1450 A. That carried us through North Carolina.

Q. You said the next one was into Georgia.

A. No sir; the next one into Georgia would be this month, June 8th.

Q. Of this month?

A. Of this month.

Q. Where did that one carry you?

A. That carried us from Copperhill to Epworth, and from Epworth to Mobile mine, No. 20 mine, and back across the Georgia *mine* to Ducktown.

Q. That was all there in three or four miles of the plants, and generally southwest from the plants, was it not?

A. South and southwest, yes, sir.

Q. Who did you talk with on these various trips over in Georgia, and who pointed out, or attempted to point out, smoke damage to you, on those trips?

A. I did not talk with many people.

Q. Do you remember of anybody you talked to?

A. Well, on that day I just now described, on June 8, I ate dinner at a house where the family's name was Patterson; I talked with them.

Q. Did they live at Epworth?

A. No, they lived about two miles southeast of Copperhill. We have two photographs in the record of that place.

Q. That was over in the neighborhood of Mr. Quintrell's place of residence, is it not?

A. Yes sir.

Q. No. 20 mine, Mobile mine?

A. Yes sir, close to No. 20 mine.

Q. You did not talk to anybody on that trip especially about smoke damage?

A. No sir, not especially, except to Patterson; I talked to him.

Q. When you were over about Mineral Bluff and Blue Ridge did you talk to anybody about smoke damage?

1451 A. Yes sir.

Q. Who?

A. Well, I made different trips, now, aside from these trips with Professor Bain; I was in Mineral Bluff and I was in Blue Ridge last week.

Q. But I am asking you now, Mr. Reese, about you and Professor Bain, when you were on those trips, any one of them, tell me who showed you any smoke damage over there, or who did you ask for any smoke damage?

A. I was not especially hunting people for smoke damage; I thought I knew that without asking anybody.

Q. How long was it that you said you had been working for the company?

A. Twenty-one years.

Q. You are thoroughly familiar with damage when you see it?

A. I think I am.

Q. And so you did not ask for that kind of information?

A. No sir.

Q. You speak about coming to the Cumberland Plateau with Professor Bain. When was that trip made?

A. That trip—we made two trips to the Cumberland plateau; one of them was February 21st and 23rd, and another one was March 12th to the 16th. Now, that covered the Cumberland Plateau trip.

Q. Well, now, were you there at another time with that big crowd or commission that they sent out over there, or was Professor Bain with them?

A. I was with the crowd that went. Professor Bain was with me on two trips to the Cumberland Plateau.

Q. Was there anybody else with you and Professor Bain on the Cumberland Plateau trip?

A. Yes sir; one trip I had J. C. Parks, M. T. Foutts, R. A. Shiflett, J. A. Miller, and Professor Bain.

1452 Q. Parks and Miller have both testified in the case, I believe, and Professor Bain.

A. Yes, sir, and Foutts.

Q. I though- you said this morning Foutts had not testified in this case.

A. No sir.

Q. Well, you went to how many counties in the Cumberland Plateau?

A. Really, I don't know. I have left part of my record at home, and I will have to give them off hand.

Q. Can't you recollect, independent of your notes, about the counties?

A. Well, I might not give them all; I might leave out some; I can give a part. We went to Anderson, Scott, Morgan, Roane, Fentress, Overton and Putnam.

Q. And Cumberland?

A. And Cumberland.

Q. Why did you all go away over 150 or 200 miles from these plants?

A. To make a comparison of the conditions as they existed in North Georgia and Tennessee.

Q. Had you not heard and did you not know that the reason you all went over there, that these forests in the Cumberland Plateau that you visited were abnormal on account of some local trouble?

A. We did not stop at the Cumberland Plateau, even. Then I went to Johnson City,——

Q. Answer my question first, Mr. Reese.

A. I had heard that, yes sir.

Q. You know what was the matter with those forests over there?

A. No sir, I do not know.

Q. Do you know what is the matter with the forests in North Georgia?

A. Well, I believe I do. I believe the biggest thing the matter with that is fire scald, and where there has been sawmilling—well, I want to answer that way. 1453

Q. Then it isn't the same trouble with that section that it is over in the Cumberland Plateau?

A. Well, I do not know, no sir.

Q. You just said you did know the trouble in North Georgia, and now you say you don't know over yonder.

A. I said I did know, in part. I would rather answer it that way; that the biggest trouble I think in North Georgia, and also in Tennessee, that is, that part of Tennessee, is where there has been sawmilling operations, fire and worms.

Q. And worms?

A. Yes sir.

Q. Don't you know, when you speak about saw mills, you attribute that to worms,—that damage?

A. Yes sir, and fire.

Q. You were in Georgia, I believe, especially investigating lands of the Vestals and the Shippens, were you not?

A. Yes sir.

Q. The Vestal lands, I believe, had been cut over a great deal, had they not?

A. Yes sir.

Q. And sawmills set up on them?

A. Yes sir.

Q. I will ask you if that same kind of conditions prevailed up on Mr. Shippen's land?

A. In part, yes sir.

Q. I will ask you if you don't know that the biggest part of that timber is virgin, and has not been touched?

A. Of Shippen's?

Q. Yes sir.

A. Well, I could not say as to its being the biggest part, but a great deal of Mr. Shippen's land has been cut over, and a great deal has not been cut over.

Q. Will you tell me a single lot there is a sawmill on, or the number of a lot on Mr. Shippen's land where there is a sawmill set? 1454

A. You named the Flat Creek country in your examination; I don't know, I could not say that Shippen's directly, has been cut over in that section, but if it had not been, the lots adjacent or nearby had been cut over.

Q. Well, can you name a single lot number up there where there is a sawmill set on his lands?

A. I have not got those notes with me.

Q. You are very familiar with the country, are you not, independent of your notes?

A. Well, no.

Q. And you cannot recollect, in your travels through there, of seeing sawmills sets on his land?

A. Yes, I saw a good many sawmills sets.

Q. You cannot identify any of those places any more than you have?

A. Not according to the lot numbers.

Q. Is it not a theory of the company, and you are looking after that especially, that feature of it, is it not your theory that the worms in North Georgia have done the biggest part of the damage?

A. It is not the theory of the company at all, unless it is true; it is not my theory unless it is true, but if I think it is true, I say so.

Q. Can't you answer my question more directly than that?

A. I don't know what you want. Ask your question again, and if I can change it I will do so in harmony with the way I see it.

Q. (Question second above read.)

A. I have answered it like I want to.

Q. Is the smoke damage—is it smoke damage or some other kind of damage down there?

A. Well, in that particular part of North Georgia, I think it is fire and worms.

Q. Is it not the theory of the company, and is it not also your theory and belief, that those smoke fumes drive out bugs and
1455 worms and insect life of most all kinds, and is beneficial to vegetation?

A. No sir.

Mr. **Miller**: On behalf of the Ducktown Copper Company, I respectfully insist it is not the province of this witness to state its theory, and he has not attempted to do so.

Q. You are the trusted employee, are you not, Mr. Reese, to look after all this class of investigation and getting up of proof for this law-suit in regard to this class of evidence?

A. I do it in part, yes.

Q. And how long have you been doing this class of work for it?

A. Well, for the last twelve or fifteen years.

Q. How many times have you testified for them?

A. I don't know.

Q. In various law-suits?

A. In various law-suits, yes sir.

Q. And don't you know if the company has a theory on this subject, that it would be based largely on the evidence that you furnished them?

A. I don't know whether they have a theory, only on facts that is all I know.

Q. And haven't the company been asking questions by your special advice and direction, tending to prove that peaches and other fruits in that section were free from insect troubles of all kinds on account of this smoke trouble, and it therefore was beneficial to it?

A. They do seem to be. I saw a peach raised in Ducktown last year that weighed fourteen ounces.

Q. I insist that is not an answer to the question.

A. I don't know what you want. I will try to answer it as you ask it.

1456 Q. (Question second above read.) Now, you say the company's theories are based on facts, do you not Mr. Reese?

A. Yes sir.

Q. And don't you furnish them the facts?

A. I try to.

Q. That is your special business?

A. Yes sir, I try to tell the truth all the time.

Q. Getting down now Mr. Reese, to those trips that you conducted, and special committee for the company down there into North Georgia, how many times did you go on such a mission as that?

A. I can't tell you how many times; I have been on so many I don't know. I could not give you the exact number.

Q. Well, when did you first commence making such trips, and when did you quit making them?

A. Well, I have been traveling through Georgia for the last eighteen years, but not especially on smoke damage business.

Q. Well, now, do you remember when you first commenced on smoke damage business?

A. Well, if you will designate any special case, I could get it better.

Q. I am speaking generally now; I want to get it generally, first; when did you comence and when did you quit?

A. Well, I commenced especially in 1910 on the Vestal case—the Shippen's case, and also 1911, 1912 and 1913.

Q. These commissions, as I understand you, were sent out specially on account of a law-suit that Vestal had against the company, and also one that Shippen had against the company.

A. Yes sir.

Q. And on those trips you went to get evidence to try to defeat the law-suits that these men had brought against the company?

A. Yes sir.

1457 Q. In the courts of Tennessee?

A. Yes sir.

Q. On the trips over south and west from Ducktown in the Vestal's property and the Jack river country, who did you see and talk with over there of the citizens of Georgia and ask them to find or point out smoke damaged trees?

A. Well, I never made it a practice to ask any man to point it out to me, from the fact that I could see it if it was there, myself. However, I talked with numerous citizens of that community and country.

Q. Who was one of them?

A. Well, let me see! I talked with James Ritchie, who is a citizen of that country.

Q. Where does he live?

A. He lives at the foot of Blue Ridge on the waters of Fighting Town Creek.

Q. Who else?

A. I talked with a Jones who lived there.

Q. Where did they live?

A. They lived in that neighborhood.

Q. Who else?

A. Well, I don't know; I talked to lots of them, because I bought supplies from the people there, and they were in the camp, and I talked with them at different times while I was there.

Q. Did you talk with some boys over on Jack River by the name of Harkins?

A. They were in the camp; possibly I talked to some of them.

Q. Tom and George; is that their given names?

A. I think so.

Q. Did you talk to anybody else around the mountain?

A. I don't know. I might have talked to others, yes.

Q. Did you talk to Johnson, or did he point out any smoke damage to you?

1458 A. No sir, I never talked with him.

A. You never talked with him?

A. No sir.

Q. Did those boys down there I have just mentioned point out any smoke damage to you, or attempt to?

A. They undertook to, yes sir.

Q. They said they were damaged, did they?

A. They claimed that they were smoke damaged, and I claimed that they were not smoke damaged. They looked like they were frosted, and they admitted themselves that they had a frost on the 10th and 11th of June, last year; I am confident that *it* what it was.

Q. When were you all over there?

A. I was over there every week from in May until in July. I had a crew of surveyors there surveying out the Vestal property which taken forty-odd days; I don't remember exactly the number of days, but forty days to survey it out.

Q. We were speaking of this trip when the camp outfit was over there.

A. The camp outfit came along in September.

Q. That was when Miller was there, was it not?

A. That was when Miller was there.

Q. When those other fellows that have testified were there?

A. Yes sir.

Q. And that was, as you have said from your notes, about the 17th of September, was it not?

A. It comenced on the 6th of September, and ended on the 27th.

Q. Frost had already fallen at that time?

A. There came a frost on the 20th and 21st of September.

Q. These hills and mountains in there, the latitude is pretty high, isn't it?

A. Yes sir.

Q. And frost appears earlier than it does down in the central basin, the low lands?

1459 A. They had a frost there, I was there myself, on the 10th and 11th of June; then they had a frost in that country on the 20th and 21st of September.

Q. What is the difference between smoke damage and frost damage?

A. Well, to a casual observer, very little difference. They are pretty much alike.

Q. A man then has to be a right smart of an expert, or quite familiar with it to tell the difference, hasn't he?

A. Yes sir.

Q. And a man who had lived away over at Athens, Tennessee, or somewhere else, that didn't see smoke damage once in seven or eight years, would not be able to tell the difference, would he?

A. It resembles very much; it is alike.

Q. What are the best months to observe that damage on trees?

A. Which do you mean, smoke damage?

Q. Yes, smoke damage?

A. Well, I don't know that there would be any difference in the days, for any month in the growing season, it could be observed if it was there.

Q Would not July and August, when the leaves are in full leaf in those mountain countries, be a better time to see the effects of smoke for the casual observer than middle or late September?

A. Well, no, I don't think I would want to say that. I think that if the smoke would do any damage, it would do it equally as quick in any one of the growing months as it would in those months.

Q. Don't you know, and isn't it your experience and observation that smoke damage shows it quicker, and more of it, in July and August?

A. No, I would not think so.

1460 Q. And if that is a fact, you have not observed it?

A. No.

Q. Well, the second trip I believe you made for the Vestal law-suit; when was the second one?

A. I commenced on the Vestal law-suit in June, 1910, and kept it up in 1911, 1912, and 1913.

Q. I am speaking with reference, Mr. Reese, to the time that you have testified, to the first one—I am speaking with reference to the second one, when you had a big crowd camping, looking over the Vestal ground?

A. I commenced September 26, and wound up on October 4, 1912.

Q. Did you make any other trip into North Georgia to investigate damage for the Vestal law-suit?

A. Yes sir.

Q. When was that?

A. That commenced on September 6th.

Q. When did it end?

A. It ended September 27th.

Q. Who was on that trip?

A. Stewart, Maughan, myself, Dotson, Miller, Shiflett, Witt and Clayton.

Q. Now, when was the next one, and when was it made?

A. That was the last one.

Q. That was the last one?

A. Yes, on the Vestal case.

Q. On the Vestal law-suit?

A. Yes sir.

Q. Well, when was the first trip on the Shippen law-suit?

A. Well the first trip on the Shippen law-suit commenced in May, 1911.

Q. When did it end?

A. I have not the data here; some four or five days.

Q. When did the next one commence?

1461 A. Well, there has been so many, I have not got the data here; I made four or five trips, though; and another one was in November, 1911, I don't know how many days; I have not got those notes with me.

Q. Do you remember when the next one was on the Shippen case?

A. No sir; I have been on the Shippen case three or four different trips. I don't know how many days on each one.

Q. You stated, I believe in your original examination, that the effect of building those tall stacks up there had a tendency to relieve the local situation and to carry the fumes further, and broadened the area of damage, did it not?

Mr. Miller: Defendant company respectfully submits that the witness did not mention tall stacks.

A. It was not in the plural—the tall stack.

Q. Don't you know, Mr. Reese, that both companies originally roasted their ores in what is known as roast heaps?

A. Yes sir.

Q. And don't you know that the local conditions were worse around the Ducktown Copper Company than they are now after they built a seventy-foot stack there?

A. Well, the Ducktown Sulphur, Copper & Iron Company has always had about the same height of smoke stack that it has got now. The Tennessee Copper Company erected a very tall stack in 1906, and what I said to Mr. Miller was that the smoke did go further after that stack was erected.

Q. But answer the question, Mr. Reese; did not the erecting of the Ducktown Copper Company's stack 70 feet high lift the copper fumes, sulphur fumes seventy feet into the air and discharge them in one dense volume and relieve the local situation to what it had been when they had a roast heap right there in that hollow?

A. No sir.

Q. When both companies built those stacks, they did not quit roasting green ores, did they—smelting green ores; they did not quit smelting them; they just changed their method, didn't they?

1462 A. No, sir.

Q. And the only difference in turning out their sulphur fumes was that in the old open roast heaps they turned them out close to the ground in a broader area than they did after they put in smelters and turned them out through a furnace and the top of a stack?

A. Of course the open heap roasting, the smoke did come out on the ground or the top of the heap; but so far as the stack of the Ducktown Sulphur, Copper & Iron Company is concerned, the hill tops around the stack are higher than the stack itself.

Q. Does that answer my question, Mr. Reese, that the smoke comes out in one dense volume now, whereas from the roast heaps it came out on a broader level nearer the ground?

A. Of course it was nearer the ground.

Q. And have you not seen the smoke from the Ducktown Company's smelter stack come out and ascend straight up into the air almost for hundreds of feet before it would dissipate or get where you could not observe it?

A. No, sir.

Q. Have you seen it go up one hundred feet?

A. Well, I could not say that I have seen it go one hundred feet; I had no way of measuring it.

Q. Look at this picture, Mr. Reese, marked "Exhibit 9" to your deposition, and taking that big smoke stack as seventy feet high, look at the smoke issuing from that and say in your opinion whether or not that smoke is over 100 feet high.

A. Well, it looks to be about twice as high as the stack is itself, anyway.

Q. Now you were asked in your original examination if there were not a great many other smoke stacks in the Ducktown basin, and you answered there were, and undertook to name how — they were. Isn't it a fact that it is easily detected, the difference, between these sulphur fumes and ordinary coal smoke?

A. It ought to be, yes, sir; I don't know how it would 1463 be to every individual; it would be to me.

Q. I will ask you just to look at it, and see if the smoke from the sulphur stack is not of a white or hazy looking color, and the smoke here claiming to come from boilers is a black smoke?

A. Yes, sir.

Q. I don't remember, but I believe you stated on your original examination, that you smelt the smoke once over in Mineral Bluff region; did you state that, or not?

A. No, sir.

Q. Did you ever smell it when you were down there in North Georgia on these trips?

A. I smelt it that Monday we talked about so much, on the 8th.

Q. Was that all the time you ever smelt it down there?

A. That is all I ever remember smelling it.

Q. Did you ever see it any other time?

A. Yes, sir.

Q. Coming down in there?

A. Yes, sir.

Q. How far down had you seen it in Georgia?

A. I don't know.

Q. About how far?

A. Well, when the Basin gets full of smoke, why perhaps it would reach two or three miles into Georgia years ago; years ago—not recently.

Q. Wasn't it so bad two or three miles down in Georgia on one of the trips that you and Professor Bain made, that you could not take pictures for it?

A. No, sir.

Q. And didn't you state in your original examination that you all had to quit one morning because the smoke was so bad?

1464 A. No, sir. I might have said something like this, now; when we taken pictures of John Quinn's orchard, which is midway betwixt the two plants, it was smoky that morning, and the smoke cleared away about the time we got there—got to the place, but before we commenced taking the picture, we could not.

Q. Have you been on the hill to the west and northwest from Blue Ridge in the last sixty or thirty days?

A. No, sir.

Q. Have you been over east of Blue Ridge in the last thirty days?

A. Yes.

Q. Where abouts?

A. Mineral Bluff.

Q. Mineral Bluff is away northeast of Blue Ridge, is it not?

A. Well, it is a little northeast; it would be east.

Q. I am talking about that bad streak where the hills open up and the smoke can go through a gap there; have you been through that gap?

Mr. Miller: Exception is taken to this question because, as I recall, there has not been any evidence of a bad streak through there.

A. There is no bad streak through there that I know of, from the fact that I have been there four or five trips this year; I enumerated them a while ago, and I don't know of any bad streak.

Q. Don't you know there is a smoke affected strip, or area, in North Georgia, leading in a south or southeast direction, and varying according to the contour of the hills and the gaps in the ridges, that is worse than any other section down that way?

A. No, sir, I do not.

Q. Do you say the smoke damage is as bad southwest from those plants as it is southeast?

1465 A. Yes, sir. I meant to say it is as bad northwest as it is southeast.

Q. But, Mr. Reese, has there any question been raised about what is going on northwest?

A. Not by you, but there is a question raised.

Q. In this law-suit?

A. Not in this law-suit, no.

Q. And don't you know that the country lying southwest from these company-*s*, as you just stated a while ago, is protected by a range of mountains or hills, and is not as bad as it is southeast?

A. No.

Q. Now, how far have you seen smoke damage done southeast, this year, from Copperhill?

A. Well, I have not seen any at all until this smoke of the 8th, and that reached about possibly a mile southeast of Copperhill.

Q. You have not seen any further than that; whose land was that on?

A. It is on the river there, about a mile southeast of Copperhill.

Q. About a mile?

A. Yes, sir.

Q. You never saw any five and one-half miles down that way?

A. No, sir.

Q. If you stated that this morning on your original examination, you were mistaken?

A. I never stated it.

Q. Did you see any smoke-bit Irish potatoes over at Vestal's this year?

A. No, sir.

1466 Q. You never saw any smoke-bit ones over in Mineral Bluff, either, did you?

A. No, sir.

Q. Those men that you had here testifying for the Copper company are from Mineral Bluff ?

A. Some of them.

Q. And who testified that they had smoke-bit potatoes; they didn't show them to you?

A. I never saw them.

Q. You didn't look around then much over there in the gardens around Mineral Bluff, did you, Mr. Reese?

A. Well, yes; there was nothing to be seen; everything was just as good as it could be, looked to be. There is no contention about the smoke this year at all, nothing about it; I never heard it from any witness.

Q. If there is the worst drouth this year that has been in years, and which has hurt stuff, you never saw it or heard of it?

A. I did. They had a drouth there for six or seven weeks.

Q. Please explain what you mean by saying that everything looked as fine as you ever saw it anywhere?

A. I answered that in regard to what you said about the smoke. I said there was no smoke conditions there at all. I re-say it.

Q. What is your present position or employment with the Ducktown Company?

A. I am termed, I believe, on the pay-roll, as "Overseer of the Estate".

Q. Mr. Reese, you made an affidavit in the original law-suit, did you not?

A. Which is that?

Q. In this original case in the Supreme Court of the United States?

A. No, sir.

Q. You did not make any affidavit?

1467 A. No, sir.

Q. Did you assist them in getting up affidavits in that case?

A. Well, I assisted Professor Bain in the work that he did, in getting up the data that he got up.

Q. I don't think you understand me, Mr. Reese. I mean back in 1906, when this case was originally brought by the State of Georgia to close down both of these copper companies.

A. No, sir.

Q. And proof was taken by affidavits?

A. I understand your question. No, sir.

Q. You did not make any affidavits?

A. No, sir.

Q. Did you assist the company in getting up affidavits in those cases, to that effect?

A. I don't know what I did in the case. I don't remember it. I never made any affidavit.

Q. You just stated that your employment has been the same for some fifteen years, did you not?

A. Well, practically the same; in one way it has been the same. I have been relieved of some parts of the work that I formerly did.

Q. And don't you know that you helped, went out and helped them to get witnesses in that case, and that that was part of your duties and employment at that time?

A. I might have done it; I don't remember.

Q. And don't you know that the theory of the company was, and you did undertake to prove, that the building of those tall stacks had entirely relieved the situation, and that North Georgia was receiving no damage at that time?

Mr. Miller: This question is excepted to because the proof in the record itself is the best evidence of what was proven, and that being a matter of writing and printing, should be referred to, and it is not for the witness to draw a conclusion.

1468 Exception overruled and appeal taken.

Mr. Drake: I ask the question to refresh the witness's recollection as to his work in the case, and to bring to his attention the fact that he did help—obtain affidavits to prove the conditions that obtained at that time.

A. I don't remember of my working in the case, in that particular case.

Mr. **Miller**: I will concede that it was the theory of the Tennessee Copper Company, and probably of the Ducktown Company that the building of the tall stack by the former would relieve the situation in the case. I understand that to be true. I do not concede that the theory was correct at all.

Q. Mr. Reese, on any of those trips of inspection when you had that big crowd and camped out, did you or anyone in your presence tell the people of North Georgia that you were down there looking at a railroad route?

A. I never heard about it at all until you introduced it in this examination.

Q. Did you tell the people what you were down there for?

A. Yes, sir; if I had occasion to, I did.

Q. Did you have occasion to?

A. Perhaps I did, yes.

Q. Well, not "perhaps," but did you, and if so, whom did you tell?

A. Well, now, I can't tell you what all I told, for I kept no record, but if I was examining Shippen's land, I was examining Shippen's land, and if I was examining Vestal's land, I was examining Vestal's land.

Q. Do you know J. W. Witherow?

A. No, sir.

Q. Did you stop with a man of that name at Mountain Town?

A. No, sir, I was not at Mountain Town. I was at Chattanooga. I organized a crowd and put them at work, but I came to
1469 Chattanooga.

Q. You said on your original examination this morning that you were over at Mr. Joe Vestal's and saw his gardens and crops. What lands was that?

A. No, I said this, Mr. Drake: That I passed through Epworth on the 8th of this month, and of course I don't know whether he has got anything else except a garden; that is all I think he has got, and I never made no minute examination of it; we passed through it.

Q. He had a garden?

A. He did have a garden?

Q. Yes.

A. I suppose all the people, or lots of them, had gardens.

Q. Didn't you say this morning that you saw Mr. Vestal's garden over in Epworth this year?

A. Well, if I said that—I do say it now.

Q. Didn't you testify to the number of the land lot that he lived on?

A. Yes, sir.

Q. What was that?

A. Seventy-five.

Q. And didn't you state that his garden——

A. Now, I wouldn't be positive about that being seventy-five. That is what I think it is.

Q. And didn't you testify that his garden was fine?

A. It was; considering the dry weather, it was fine.

Q. And his orchard, didn't you say his orchard was good?

A. Yes, sir.

Q. And his crops were good, and that everybody's gardens were good over there?

A. Good, considering the dry weather, yes, sir.

Q. How far have you seen smoke northwest from Ducktown?

A. Well, I think I have seen the signs six or seven miles.

Q. Now, Mr. Reese, that damage was closer to the Duck-
1470 town Company than it was to the Tennessee Company, was
it not?

A. Well, on airline, yes.

Q. How many miles?

A. Well, it would be something like two or three, two and one-half or three miles; two miles; two miles or two and one-half.

Q. You know something about how these smokes travel through the gaps in the hills, do you not?

A. Yes, sir.

Q. Wouldn't it travel better through the gap of a hill than it would over a hill?

A. Yes, sir.

Q. And doesn't it have a tendency to follow the low gaps rather than to go straight over a hill?

A. If the air currents carry it that way it would; yes sir.

Q. If the smoke from the Ducktown Copper Company's stack should ascend in the air 175 feet, or 190 feet, and the winds were blowing from the northwest towards the southeast, whereabouts would those smokes come in contact with the Tennessee Copper Company's plant?

A. I don't think you would get a condition like that.

Q. Answer my question, if that condition should obtain?

A. Well, I could not speculate on a condition like that, from the fact that I never saw a condition like that.

Q. Don't you know that it would strike it exactly on a level beyond where the Tennessee Company's smoke comes out?

A. Well, if you could have a condition like that, possibly it would, but I don't think you would ever have a condition like that.

Q. Then that would be the effect, if such a condition as that should prevail.

A. Well, I am not going to say "Yes", when I know it is not, because I don't know it.

Q. If that smoke should strike the Tennessee Copper Com-
1471 pany's plant right where it comes out, wouldn't those smokes
join and mingle and go into the northeast of Fannin County,
Georgia?

A. No, if you were figuring on a condition like that, then the Tennessee Copper Company's smoke, under the circumstances that you have described, would be going that much higher, and so they would not intermingle, if you could have a condition like that which you describe; but I have never seen a condition that you have described.

Q. I understand that you say that it is impossible for such conditions to prevail, but if they did, you say they could not mix?

A. Well, for the same reason that, if you take a condition that the Ducktown Sulphur, Copper & Iron Company's smoke would go 190 feet as you have stated, th*a*n the same condition would allow the Tennessee Copper Company's smoke to go that much higher, so they would not intermingle; you see that yourself.

Q. Do you know enough about winds and the currents of winds and airs to know that there is a difference in the lower strata, or that next to the earth, and those that travel oftentimes up above it?

A. I do.

Q. And have you not seen the clouds very high going one way, and those still lower going another?

A. Yes sir.

Q. To what would you attribute that condition?

A. You can see that demonstrated in the high stack of the Tennessee Copper Company.

Q. Answer my question.

A. I am answering it.

Q. What do they indicate, when you see clouds in one strata going one way, and clouds in a lower one going another way?

1472 A. I want to answer it this way; I want to answer it to suit myself; I have seen the smoke going very straight from the Tennessee Copper Company's stack perhaps 100 or 200 feet high, and then break off and travel on a level.

Q. Would that indicate that the winds are blowing one way high up, and another way lower? Ain't that what those conditions indicate?

A. I don't know whether I want to put it that way or not.

Q. Well, now, let us suppose that the air is quite still down close to the earth for 175 or 180 feet, and that at about 175, 180, 190, or 200 feet the wind was blowing pretty strong; wouldn't the smoke from the Ducktown Copper Company ascen*t* practically straight up until it struck that upper current of air, and then if the upper current was driven from the northwest towards the southeast, wouldn't it drive it right down on to and into the Tennessee Copper Company's smoke stack?

A. I saw this; I saw it——

Q. Answer my question, please, and then explain?

A. I will answer it this way; I saw it on June 8th traveling on the ground; it struck the ground immediately after it left the Ducktown Sulphur, Copper and Iron Company's smoke stacks, and it was diffused out there until it was not visible in the air at all in less than a mile and a quarter from the works.

Q. Answer the question, please, Mr. Reese.

(Question second above read.)

A. I think it would be precipitated before it reached the Tennessee Copper Company's works.

Q. Then, as I understand you, the Ducktown Copper Company's smoke would not reach as far as two and one-half or three miles?

A. I don't think it would, no.

Q. Don't you know, Mr. Reese, that you have seen the smoke come out of that stack and go up in a solid column and travel off in any direction the wind might be blowing, and go for a
mile, without perceptibly breaking up at all?
1473 A. Well, yes, I think it might go as far as a mile until
it would—not much over a mile, until it would be perceptible.

Q. And then have you not seen it go gradually on and on, until it would be so far that you could not see it, is the reason you could not see it further?

A. No sir.

Q. There is a great deal of dead timber in North Georgia, next to these plants, isn't there, Mr. Reese?

A. Not extraordinary; there is some dead timber.

Q. Don't you know that the reason there isn't more dead timber, is that it has all been killed and the people have cut it down and sold it for wood and burned it up; some of it went that way?

A. Yes sir.

Q. Don't you know from your own personal knowledge that it is gone?

A. Immediately in the Ducktown Basin, that is true.

Q. And don't you know that condition extends northwest about ten miles from these plants, and southeast about ten or twelve or fifteen miles?

A. No sir, you have got in wrong. The Basin east and west is about eight miles, and north and south it is about ten miles.

Q. Don't you know there is a gap in the mountain leading down into Gilmer County that carries those fumes from eighteen to twenty-five miles away?

A. I don't think it does.

Q. And have you not seen the effects visible on the foliage that far away?

A. No sir. In 1906 and 1907, I was on an inspection those years, and the worst I ever saw it, and went on fur— away;
that was the year of the tall stack being put in operation
1474 by the Tennessee Copper Company; and, air-line, I don't
think I saw the effects over eight or ten miles in Georgia.

Q. Where was that at?

A. That was in Fannin County.

Q. At what point in Fannin County?

A. Well, I think I have seen the effects of it on Sugar Creek, that is west of Blue Ridge.

Q. Didn't you say in your original examination in the Shippen case that you had seen the effects of that smoke twenty miles away, in Gilmer County?

A. No sir, I don't think you could find it.

Q. I will ask you if you was not asked, in the case of Shippen Brothers Company against this Ducktown Company:

"Q. Now you say you did not inspect in 1905. In 1906 where did you find it fartherest away?", and wasn't your answer,

"A. I believe the furtherest away I saw it in 1906 was in September when I was out twenty-one days and it was as far down as Greasy Creek."

A. Well, that has nothing to do with Georgia; that is down in Polk County.

Q. "Q. How far is that from the Ducktown Sulphur, Copper & Iron Company's plant? A. Twenty miles."

A. That is right.

Q. Then you have seen it twenty miles away?

A. Yes, and in 1906 it was very visible on Greasy Creek.

Q. Didn't I ask you a moment ago how far you had seen it away, and didn't you answer eight or ten miles?

A. No sir, you didn't ask me that, Mr. Drake. You asked me how far down in Georgia I had seen it.

Q. You never examined those mountains east from Ellijay and Cherry Log and Whitepath, did you?

A. Yes sir.

Q. You couldn't find any smoke down there?

1475 A. Yes, sir, a little bit in 1906 on Cherry Log.

Q. How far is that away?

A. Well, air-line, I guess it is about 15 to 18 miles.

Q. That is down in the State of Georgia, as I understand you?

A. Yes sir, that was in 1906.

Q. Did you see any smoke damage down east from Ellijay, in the Turnip Creek hills and mountains?

A. No sir.

Q. Did you look up there for any?

A. Yes sir.

Q. I will ask you, in the mountains and hill sides southeast from Whitepath, did you look for smoke damage?

A. Yes.

Q. Did you find any up there?

A. No sir, I did not think the smoke had ever damaged anything up there.

Q. I believe you said in your original examination that the effects of this smoke were worse on certain hills than on others in the same locality. Is that not a fact?

A. I did not say that, but, then, if you want to ask me the question, I will answer it.

Q. Is that it? (Question second above read.)

A. Well, please say that I did not say that.

Q. Will you state that the effects of these fumes are uniform in any certain community?

A. No sir, I don't think they are.

Q. Are they not worse on one tract of land than they are on another lying in the same neighborhood?

A. Well, it could be the case, depending altogether on the air currents.

Q. And hasn't that been your observation?

A. Well, possibly in some instances, yes.

Q. Have you not in traveling through those mountains and hills observed a patch of damage, and go on and strike other
1476 timbers joining it that were entirely unaffected from smoke?

A. Yes sir.

Q. Then, as I understand you, you attribute that to the air currents?

A. Yes sir.

Q. Being driven, as I understand you, in the one instance onto the timber at this certain point, and at the other would be driven away from it?

A. Yes sir.

Q. How did you, Mr. Reese, get your knowledge or information of how to make copper and sulphuric acid?

A. I don't think I ever stated very much about how they did make copper and sulphuric acid.

Q. I will ask you if you did not go into a detailed description of how they handled these fumes and operate that acid plant, in your original examination this morning?

A. Not very deep. I described the acid plant in a casual way.

Q. All that was just hearsay, was it not? You don't know of your own knowledge how to do that?

A. Yes, I have seen it with my own eyes.

Q. Didn't the men in charge of the plant tell you, and don't you know you could not see inside of things and tell what was in there?

A. Yes, I have seen inside of the plant.

Q. Did you ever go inside, where those fumes was going in, or did you ever put in the machinery that actually operates those things?

A. No, I never put in the machinery.

Q. You have been conducted through there like a visitor, only you have been there more times than a visitor, isn't that about all?

A. That is all.

Q. You don't know anything about the mixing of gases to get effects?

1477 A. No sir.

Q. You don't know what effect carbon gas would have on this sulphur gas, do you?

A. No sir.

Q. Nothing of the kind?

A. I am not an expert on that.

Redirect examination.

By **Mr. W. B. Miller**:

Q. You know where the fumes are generated at the smelting plant?

A. Yes sir.

Q. And you know how they are conducted from there into this converter?

A. Yes sir.

Q. And then you say they are sent from that converter or Glover town into the chamber operation?

A. Yes sir.

Q. You know that they go that way?

A. Yes sir.

Q. And then the product goes some four hundred and more feet on one side and is returned on the other?

A. Yes sir.

Mr. Drake: We except to all these questions, as leading.

Q. Well, Mr. Reese, when asked about these men that were sent down into North Georgia to look about the timber and the selection of men that lived away from or out of the Ducktown Basin, I will get you to state whether or not a man of average intelligence can tell when a tree is dead and when it is growing?

A. He can.

Q. Have you ever heard it maintained that it required a smoke expert, or sulphuric acid expert to tell whether a tree was dead or whether it was green?

A. No sir, I never did.

1478 Q. Do you know whether or not the company in engaging these men, endeavored to get men that were entirely removed from the section, and that were timber men?

A. Yes sir.

Mr. Drake: We except to that as leading and as being a conclusion of the witness.

Q. You have been asked on examination in chief about the Ducktown Company erecting a tall stack, and about these companies erecting tall stacks. State what is the height of the present stack of the Ducktown Copper Company as compared with what it has been ever since the company started in 1891?

A. About the same.

Q. And has it or not always sent out through the top of that stack a percentage of sulphur in the form of sulphur fumes?

A. It has.

Mr. Drake: We object to the last question and answer, as being a conclusion of the witness.

Q. And whether the Ducktown Company's present stack is on the same ground or substantially the same ground and site that it has always been on?

A. It is practically the same site it has always been on.

Q. You were also asked on cross-examination as to what happened after these companies put in smelters. I will get you to state whether or not the Ducktown Company has always, since 1891, operated a smelter.

A. It has.

Q. The fact is, it could not produce the ore without operating a smelter?

A. No sir.

A. Mr. **Drake**: We object to the above, as being leading and a conclusion.

1479 Q. Has there ever been any change in the manner of smelting ores except that after they ceased to roast in the open heaps, they smelted the green ore—smelted the ore green?

A. That is all the change.

Q. Now that Greasy Creek section that you found so badly affected in 1906, I believe you stated that was in Tennessee?

A. Yes sir.

Q. State whether or not that was at the junction and along near the mouth of Greasy Creek where it empties into the Ocoee River?

A. It was.

Q. And state whether or not the smelters of the Tennessee Copper Company at that time were operating full blast right on the bank of the Ocoee River?

A. They were, in 1906, the year of the installation of the tall stack.

Q. Mr. **Drake**: We except to the question as being leading, and to the answer as being a conclusion of the witness.

Q. State whether or not the blighting effects of the fumes were traceable right back from Greasy Creek up the Ocoee River to the Tennessee Copper Company's plant?

A. It was.

Mr. **Drake**: We except to the question as being leading, and to the answer as being a conclusion.

Q. Did you trace them along there and see it for yourself?

A. Yes sir.

Q. You saw the timber there yourself?

A. Yes sir, down the river.

Q. And you were asked also as to the distance from certain Georgia points to one or the other of these plants, and you described it in your cross-examination as being from ten to eighteen miles. Now, was that from Isabella or from Copperhill, or where was it?

A. That would be from Isabella, is what we calculated from.

Q. So it would be how many miles closer to Copperhill?

1480 A. Three miles less; it would be about twelve miles from Copperhill.

Q. Now you were also asked to suppose a condition when the fumes from the Ducktown Company's plant would rise to a height of from 175 to 190 feet, and then be concentrated on a plane, a straight line to the top of the Tennessee Company's stack, and you were asked if, under those circumstances the fumes would not intermingle. Now, I will ask you whether or not you have ever seen the fumes from one of those plants sent up to that distance and then concentrated in a straight line with full force at the top of the stack of the other one?

A. I never saw that condition.

Q. State whether or not the fumes immediately begin to diffuse after they are eliminated?

A. They do.

Mr. DRAKE: We except to the above as being a conclusion, and to the question as being leading.

(Signature waived.)

1481 STATE OF TENNESSEE,
County of Knox, ss:

I certify that I took the foregoing deposition in the words of counsel and witness, and correctly transcribed the same.

This June 26, 1914.

R. S. C. HUTCHINSON, *Reporter.*

1482 In the Supreme Court of the United States.

STATE OF GEORGIA, by Its Attorney General, JOHN C. HART,
vs.
TENNESSEE COPPER COMPANY and DUCKTOWN SULPHUR, COPPER & IRON COMPANY, LTD.

Stipulation.

It is hereby agreed by counsel for the State of Georgia that it shall be a sufficient certificate to the foregoing depositions for the stenographer to certify that he correcly took the statements of the several witnesses in shorthand and correctly transcribed the same; formal caption and certificate in all other respects, and the signatures of the witnesses being waived.

It is further stipulated that all exhibits produced by all witnesses on behalf of the Ducktown Company need not be actually filed for the present with the transcript of testimony but they are hereby treated as being regularly filed as of the date of filing the said transcript and that they may be later transmitted to the Clerk's office and filed after the taking of the entire testimony herein is completed.

J. A. DRAKE,
Counsel for Complainant.
J. A. FOWLER,
W. B. MILLER,
Counsel for Respondent.

[Endorsed:] Supreme Court U. S., October term, 1914. Term No. 1, Original. The State of Georgia, complainant, vs. The Tennessee Copper Company, et al. Evidence for the Defendant, The Ducktown Company. Filed September 14, 1914.

1483 In the United States Supreme Court at Washington, D. C.
No. 1, Original.

STATE OF GEORGIA
vs.
TENNESSEE COPPER COMPANY and DUCKTOWN SULPHUR, COPPER AND IRON COMPANY, LTD.

The depositions of J. B. Kinsey, M. C. Goss, J. R. Herren, W. W. Thrasher, A. L. Chastain, W. P. Harper, T. M. Bennett, I. S. Davis, Ham Holt, J. W. Clayton, Grant Orten, T. E. Garren, J. E. Wilson, Robert Hampton, F. T. Largent, E. L. Stanley, J. M. Davis, W. E. Rogers, B. H. Holt, A. M. Johnson, Jason Aikins, W. S. Clayton, W. T. Higdon, W. T. Postell, J. E. Thompson, G. M. Bentley, J. H. Quintrell, Sherman Reese, taken on notice under order of the Supreme Court of the United State of date October 19th, 1914, on behalf of the defendant, Ducktown Sulphur, Copper and Iron Company, Ltd.

It is agreed that the Commissioner, R. S. C. Hutchinson, may transcribe the notes and transmit the same, together with the exhibits to the Clerk of the Supreme Court of the United States at Washington; and further may sign the names of the several withnesses to their depositions without said depositions being submitted to the parties; and all formalities of caption and certificates are hereby waived, except that the Commissioner shall certify that he correctly took and transcribed said depositions.

WARREN GRICE,
Attorney General of the State of Georgia.
J. A. FOWLER,
Attorney for Ducktown Sulphur,
Copper and Iron Company, Ltd.

1484 In United States Supreme Court at Washington, D. C.

No. 1, Original.

State of Georgia
vs.
Tennessee Copper Co. and Ducktown Sulphur, Copper and Iron Company, Ltd.

The depositions of J. B. Kinsey, M. C. Goss, J. R. Herren, W. W. Thrasher, A. L. Chastain, W. P. Harper, T. M. Bennett, I. S. Davis, Ham Holt, J. W. Clayton, Grant Orten, T. E. Garren, J. E. Wilson, Robert Hampton, F. T. Largent, E. L. Stanley, J. M. Davis, W. E. Rogers, B. H. Holt, A. M. Johnson, Jason Aikins, W. S. Clayton, W. T. Higdon, W. T. Postell, J. E. Thompson, G. M. Bentley, J. H. Quintrell, Sherman Reese, taken on notice under order of the Supreme Court of the United States of date October 19th, 1914, on behalf of the defendant, Ducktown Sulphur, Copper and Iron Company, Ltd.

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1485 *Evidence in Rebuttal.*

First witness, J. B. Kinsey being first sworn, deposes as follows:

Examined by Mr. W. B. Miller:

Q. What is yo-r age?
A. About forty-nine.
Q. Do you live in North Georgia?
A. Yes Sir.
Q. In or near what point?
A. I live in Epworth.
Q. That is how far from the state line—the Tennessee state line?
A. You mean the air line?
Q. Yes; about that?
A. Well, sir, I guess about two to two and one half miles air line.
Q. What business are you engaged in?
A. I follow carpentry work a good part of the time, farming generally through the summer time.
Q. I will get you to state how long you have lived in or near Epworth?

A. I have been there five years, sir.

Q. Do you raise any gardens, crops or orchards?

A. I garden altogether every summer.

Q. State the condition with respect to sulphur fumes smoke or damage therefrom in your section of country from the first to the fifth of July of this year, if there was any?

A. Well; sir, if there was any from the first to the fifth of July, I have no recollection of it.

Q. If there had been any damage of consequence, that is, any substantial damage done down there, would you have known it?

A. I think so, sir because there was a little money appropriated for that business, and I thought I was as much entitled to it as any man, and so, necessarily, I kept the dates. 1486

Q. You understood that the Tennessee Copper Company had up an appropriation with Georgia, under a contract, and you were looking out to see if there was any damage so you would get your part?

A. Why sure, yes sir.

Gen. DRAKE: We except to that as irrelevant, and not in rebuttal to what has already been introduced.

Q. Now, was there any damage of consequence during the entire season this year?

Gen DRAKE: We except to the question as calling for a conclusion.

A. Well, about the 8th and 9th there was a little bit of smoke came over there, and it seemed like for a little bit that it hurt everything considerable, but in the course of about ten or twelve days, I think it was about all gone out of there. Outside of that I don't think there was any damage; I never heard anything at any rate. I was gardening, and I guess I raised something between twelve and twenty-five bushels of tomatoes, and they are about the easiest vegetable killed, I guess, there is; and there — some different men went into my garden to look at the tomatoes I had, and I guess if I was going to swear positively in regard to it, my estimation would be twenty-five bushels.

Gen. DRAKE: I except to the answer as being irrelevant, and not being in rebuttal of anything that has been proven in this case.

Q. Were you acquainted with that North Georgia section before the acid plants were built at the two copper companies?

A. Yes Sir.

Q. How did the volume of damage that was done before those plants were built and installed, say from 1907 up until 1908, compare with conditions since those plants were put in operation? 1487

A. Oh, well, there is quite a difference; quite a difference.

Gen. DRAKE: I except as not being in rebuttal.

Q. What do you mean by "quite a difference"?

A. Well, there is not as much damage done now as there was at that time.

Q. Now do you know whether in May, of 1913, say from May 1st up to May 15th or 16th, was there any damage done through that section?

A. Well, sir, I wouldn't swear on that. Sometime during the year, or during the summer, there was some smoke came down; I noticed it turn the *t*otatoe crops kind of white, but whether it was then, I wouldn't say.

Q. Was it of any consequence?

A. I don't think so.

Q. Gen. DRAKE: I except to that question as calling for a conclusion.

Q. You know when anything is damaged of consequence by smoke, don't you?

A. I think so.

Cross-examination.

By Gen. J. A. DRAKE:

Q. What is your occupation, Mr. Kinsey?

A. I farm and carpenter.

Q. I will ask you if you do not spend the most of your time working for the Ducktown Copper Company?

A. I have worked there off and on about thirteen months, sir, which is all the work I ever did for them.

Q. Are you in their employ down here?

A. No sir. Well, yes sir, they have employed me as a witness to come down here.

Q. How much do they pay you?

1488 A. There has never been any agreement. I have never had one of the company say anything to me about it.

Q. You don't know how much you are going to get?

A. No sir, I do not.

Q. I will ask you if they have not agreed to give you five dollars a day while you are down here?

A. No sir, there hasn't been any agreement made.

Q. Do you own any land in Tennessee?

A. Yes sir.

Q. How much land do you own?

A. I guess I own about thirty-five acres, sir.

Q. Whereabouts?

A. I own an acre right in town, and about three quarters of a mile of town I own thirty-four acres, more or less.

Q. Do you mean in the State of Georgia?

A. Yes sir.

Q. Is that where you live?

A. I live right in Epworth.

Q. I say the land you own, do you live on it?

A. I live on the lot in Epworth, the land that I have is outside of town.

Q. I will ask you now if the deed to that land is not in your daughter—the title?

A. Where I live it is.

Q. And that is the land you have just sworn that you own, is it not?

A. Yes sir, I own it.

Q. Don't your daughter own it, and isn't the legal title in her?

A. No sir, it is not. I say it is not, because I deeded her six acres of land in one, and the other was deeded to my wife.

Q. There is damage over in North Georgia?

A. Well, I suppose there is a little damage more or less
1489 I claim they hit my individual crops.

Q. There was some on your individual crops?

A. Very little.

Q. Didn't you put in a claim for it?

A. I put in a $10.00 claim.

Q. This year?

A. Yes sir, about the 8th or 9th of June.

Q. Of this year?

A. Yes sir.

Q. For their damage to your garden?

A. Yes sir.

Q. That is all you had in your garden?

A. Yes, sir, on the acre there.

Q. Last year did you put in any claim for damage, last year?

A. No sir, that was the only time I ever put in any claim for damage.

Q. Where is that thirty-five acre lot of land?

A. I don't remember the lot; probably Mr. Vestal recollects the lot; it is right below where Jim Chastain lives. Do you know what lot that is, Mr. Vestal?

Q. Just answer my question.

A. I don't know; I guess it is three quarters of a mile out of town. I don't recollect the lot.

Q. Well, now, you say there was no damage done last year about the 10th to the 16th of May?

A. I said I wouldn't say what time it was done; there was a little damage done on my potatoes, but I don't know whether it was that year or not, because the vines have covered the ridges all over —.

Q. You say there was some (damage) that was done last year?

A. I say very little, yes sir.

Q. There was some damage done? you say a very little;
1490 you don't know how much was done except on your own garden, and in that neighborhood?

A. I say, there was very little done.

Q. Of course, if you live by working at the carpenter's trade, you do not live by farming, do you?

A. Well, I did live, up to last year, by farming.

Q. When you talk about last May, when you say there wasn't but little damage done, was when the Tennessee Copper Company closed down?

A. Last May a year ago *what* what I had reference to.

Q. That is what I am talking about?

A. I made a crop last year.

Q. That is last year, isn't it.

A. That is last year.

Q. And that is what you had reference to when you answered?

A. That is what I said.

Q. In your original examination. What were you doing on those days?

A. What was I doing? I was farming.

Q. What were you doing?

A. I suppose I was working on my farm.

Q. Tell me what you were doing on the 10th day of last May a year ago?

A. I am not going to tell you for I don't know.

Q. You don't know what you were doing a single day?

A. I know I was at work every day.

Q. At what time—tell me what you were doing any day, and were you working from the fifth of May to the sixteenth of May?

A. I am not going to because I can't tell you.

Q. What were you doing from the first to the fifth of July this year?

A. From the first to the fifth? On the first day of July I was at work at the Ducktown Sulphur, Copper and Iron Company,
1491 and on the second day I got off to go home and fix my well on what you claim to be my daughter's place. I was at work on my well that day, and I bought some lumber and went and got it and I stayed home then from the second until the sixth; the sixth I went back to work.

Q. The Ducktown Copper Company was running on the first?

A. Yes sir.

Q. It had started up the night before, had it not?

A. I don't recollect what time they started up, but they were running.

Q. They were running on the first, they were running on the second, third, fourth and fifth?

A. I wasn't there from the second until the sixth; I left there on the second, and went back the sixth.

Q. There was some smoke, and there was some damage; how much damage was done?

A. I said there was no damage done from the second to the sixth.

Q. At your place?

A. At no place.

Q. You live right there close to Epworth?

A. I live right in Epworth and I never saw no damage done anywhere around there.

Q. You live close to the Tennessee line, two miles and a half of it?

A. Yes sir, but it is not two miles and a half from the Ducktown Sulphur Copper and Iron Company.

Q. You don't know what was done off to the side of the mountain, six miles from there?

A. No sir, I don't know what was done on the other side.

Q. The Tennessee Copper Company was not running during that time, was it?

A. I don't know sir, anything about the Tennessee Copper Company.

1492 Q. Don't you know you pass by there, you pass by there——

A. I know I passed by there, but I know I did not ask them anything about it.

Q. You can tell me when the Tennessee Company first began to run by riding right along by it?

A. I can't tell when they were running.

Q. Don't you know it was not running?

A. I don't know whether it was running when they were running; I don't know if they had started up.

Q. You passed right by the Tennessee Copper Company when you came down to Epworth from the Ducktown Company on the second, did you not?

A. I went right through the yard; yes sir; right through the yard.

Q. And there wasn't a thing on earth to keep you from seeing it then?

A. No sir.

Q. You are in sight of it for two or three miles, are you not, before you get to it?

A. I am in sight of it when I am at home.

Q. And in coming from Ducktown, from the Ducktown company are you not in sight of the Tennessee Copper Company from the time you get on top of that little hill there above the plant?

A. Pretty nearly all the way.

Q. And you see it all the way along that road?

A. Yes sir.

Q. And if it — running, don't you know you can see the smoke boil out of the top of that big stack?

A. Yes, sometimes you can and sometimes I wouldn't notice it.

Q. Isn't the smoke noticeable all around it?

A. I suppose so.

Q. Don't you know that anybody who lives in that neighborhood knows when the plant is closed down?

1493 A. A man can get so that when a train is running by him he won't turn his head to look at it.

Q. Answer my question?

A. How was it?

Q. I said, isn't it so noticeable that anybody on earth passing along can tell that it is running?

A. He could if he was noticing it; I wasn't paying any attention to it at that time.

Redirect examination.

By Mr. W. B. **Miller**:

Q. You have referred to a Mr. Vestal while you were giving you- cross-examination: Is that Mr. J. P. Vestal who sits here by Gen. Drake who has cross-examined you?

A. Yes sir.

Q. And who has been suggesting to Gen. Drake during the cross-examination what questions to put to you?

A. Yes sir.

Q. And how far do you live from that Mr. J. P. Vestal in Epworth?

A. It is from three hundred to five hundred yards, I guess.

And further deponent saith not.

J. B. KINSEY,
[SEAL.] By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this 6th day of November, 1914.
R. S. C. HUTCHINSON,
Commissioner.

Mileage, 220.

Next witness, M. C. Goss, for defendant in rebuttal, having been duly sworn, testified as follows:

1494 Examined by Mr. W. B. **Miller**:

Q. How old are you Mr. Goss?

A. I am fifty-two years old.

Q. Where do you live sir?

A. I live in Epworth, Georgia.

Q. How long have you lived there?

A. I have lived in that little town for—oh, I mean, inside of a mile of the place, for three years; and if you go a little further back I have lived in less than three miles and a half of Epworth for thirty years.

Q. State what business you are engaged in and have been for the last two or three years?

A. Well, sir, I mix it a little; I work at the carpenter's trade some, and kind of make some garden patches and farm some.

Q. State whether there was any damage done down in your section of the country, I mean by that, the Epworth section, from the first of July up to the fifth of July of this last year?

A. How is that; from when?

Q. From July 1st, this last July, the first of July, up to the fifth?

A. If there was I didn't see it.

Q. Well, if there had been any substantial damage down there, would you have seen it?

A. Why, I was looking out to see if there was anything done to my stuff, to my garden stuff all along, and I didn't see anything at that time.

Q. Why, were you looking out for the dates about that time, Mr. Goss?

A. Well, sir, it was said that one company was paying some damage to the state and the state was to pay it to the individuals that were damaged, and my idea was, if I was damaged enough to be worth anything, to put in a claim for it.

1495 Q. Well, now, if the smoke would come over into that section so as to damage your neighbor's garden or fields or orchards, would it not damage yours also?

A. Well, if it was to go to them it would; but some times it might go to one place, and another place not far off not get to that; it might do that.

Q. But did it ever come over and just settle on one of your neighbor's and damage him, and not damage the balance?

A. If it did I don't know it.

Q. You never saw it play a prank like that?

A. No sir, I never caught it at anything like that.

Mr. Lamar Hill: We except to that as leading.

Q. What kind of growing season was down there during the early season of this year; did you have any drouth or wet waather?

A. Well, there was a drouth I call it.

Q. Did it affect the crops and vegetation any?

A. I think it affected my stuff a right smart—a little.

Q. How long did it last, that drouth?

A. Well, I can't say as to that, just how long.

Q. Well, probably?

A. Why, it was five to six weeks that there wasn't enough of rain to be called a season, I think.

Mr. Drake: I except because original evidence.

Q. Now, you lived there in 1913, too?

A. Yes sir.

Q. Was there any damage in your section from May 1st up to the middle of May, 1913, or in the entire month of May, 1913, from smoke?

A. I can't tell you, sir, about that; I don't remember noticing that, in those dates.

Q. You didn't file any claim for damages if there was any done?

1496 A. No sir, not in 1913.

Q. You did live down in there before those acid plants were put in operation at the two copper companies?

A. Yes sir; I lived in about three and a half miles from Epworth, yes.

Q. How about the conditions as to smoke damage since those plants have been put in operation, say since 1908, how do they compare with what they were before they were say back about 1907 and during 1907?

Gen. DRAKE: We except because the question calls for original evidence and not rebuttal evidence.

A. Well, I don't think it has been quite as much damaged since they were put up as along before, is the way I look at it.

Q. Was there any damage done down there of consequence until that tall stack was built in 1906?

A. Oh, I don't remember.

Cross examination waived.

Further deponent saith not.

[SEAL.]

M. C. GOSS,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this Nov. 6th, 1914.

R. S. C. HUTCHINSON,
Commissioner.

Mileage, 220.

Next witness, J. R. HERREN, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by Mr. MILLER:

Q. How old are you sir?

A. I am sixty-seven.

1497 Q. Where do you live in Georgia?

A. Where do I live?

Q. Yes sir.

A. I live at Epworth.

Q. How long have you lived at Epworth, Georgia?

A. About eight years, it will be in December.

Q. In what business are you engaged down there?

A. I am selling goods now and farming a little, and gardening, and so on.

Q. State whether there was any damage done down in your section from smoke from the first up until the fifth of July this last July?

A. Well, I think it was somewhere along—I couldn't be right positive, but I think it was about from the sixth, seventh and eighth, when the smoke came over there; I don't remember the date.

Q. In July or June?

A. That was in July, I think; July, you asked me?

Q. Yes sir, I am asking you about July, if there was any from the first up to the fifth?

A. Well I don't remember of any smoke that has done any damage.

Q. Are you more or less through the woods and fields in your section?

A. Why I haven't been out a great deal this summer; I have been around the place where I live and off may be three or four miles from home; I haven't been out much.

Q. If there had been any substantial damage done down through that section to the crops and orchards and fields do you think you would know it?

A. I think I would.

Q. Has there been any damage of consequence this last year, that is, the year 1914, at any time throughout that section, from smoke?

1498 A. Well, there was a little done along in July about, which scorched the beans and one thing and another, but not to amount to much. We made fine crops of beans there; we canned a good many of ours, and Dr. Weeks canned something over two thousand cans, I guess.

Q. And did you file a claim for damages against anybody?

A. Why I did along in May; I thought we were damaged pretty bad or scorched up right smartly, and I filed a claim and then, later on, there came a rain and it seemed like everything came out all right; we were suffering with a drouth a great deal, and I would have withdrawn the claim if I had had the chance.

Mr. Hill: We except to the last part of the answer as not in rebuttal, and immaterial.

Q. The claim that you filed, then, was for damage that you thought was done in May of this year?

A. Yes; on the corn, about the time it first came up.

Q. That was when, about?

A. That was, I think along about the middle of May when I planted my corn, and it came up, and I planted late.

Q. And you say — had a drouth along that time?

A. Yes; we have had considerable drouth all the summer, the greatest drouth in my opinion in several years.

Q. That affected the crops did it?

A. Yes sir; we thought the crops were ruined until on up in July; it was worked over two or three times and hadn't had any rain.

Q. Over how many months or weeks did that drouth extend this last season?

A. I suppose six or seven weeks; I don't remember just exactly.

Q. You say when there did finally come a rain, the vegetation put out again?

1499 A. Yes sir, it came out fine; we got the best crops around there that we have had since I have been in Epworth.

Q. And that has been how many years?

A. Eight years, it will be in——

Gen. Drake: We except to all that evidence as being irrelevant, and not in rebuttal.

Q. If you had had a chance you would have withdrawn your claim against the Ducktown Sulphur, Copper and Iron Company?

A. Yes sir, I would.

Gen. Drake: We except to that.

A. (cont'd). After everything begin to come out there came a rain and everything looked so promising I thought we were not damaged any; we were damaged more by the drouth than anything else.

Q. Have you ever known of a better crop in North Georgia than was raised down there this year?

A. I never have.

Q. And you have lived in North Georgia for how many years?

A. I have been there eight years; I have been in North Georgia a little longer; I lived in the upper end of the county two or three years before I came to Epworth.

Q. Have you got any memoranda with you as to the exact date when the smoke visited that section this year?

A. This year?

Q. Yes sir, you thought it was along about——

A. No sir; I haven't got any memoranda written down.

Q. You said, as I recall, that it was about the sixth to ninth of July; what I want to get you to be positive about is to refresh your recollection, if you can, and tell us whether that was from the sixth to the ninth of July, or the sixth to the nineth of June?

Gen. Drake: We except to that, as the witness has already testified on this subject two or three times, and said positively it was *in* July the sixth to the nineth.

1500 Mr. Miller: I want to get the witness to say, if I can, positively that it was the sixth to the nineth of June, and I want the witness to be satisfied in his own mind, in his own conscience whether I am right, or not.

Gen. Drake: And I except to it for the further reason that the question is improper, as it suggests the answer to the witness.

Mr. Miller: I want to suggest it to him to be right about it before he answers.

Q. Now, Mr. Witness, satisfy yourself on the point, and say whether it was the sixth to the nineth of July, or the sixth to the nineth of June; if you can refresh yourself in any way do it.

A. Well, it was in July.

Cross-examination by Gen. Drake:

Q. Mr. Herren, you say you have had the best crops over there this year, you have ever had since you have been there?

A. Yes sir.

Q. Then you would conclude from that, would you not, that a drouth in North Georgia is good for the crops, if this was the worst drouth you ever saw?

A. I believe, sir, it is, through May and June, good for crops; we get our corn cleaned up, and the rain comes and it makes the corn. I have always heard that.

Q. You did have a great deal of smoke over there in May did you not?

A. In May?

Q. Just before you filed your claim for damages, didn't you know it boiled over there every day through the woods?

A. We had some smoke over there, and it affected the stuff some, yes.
Q. You could see it and smell it too, could you not?
A. Yes sir, I could smell the smoke.

1501 Redirect examination by Mr. **Miller**:

Q. That was May of this year?
A. Yes sir.
Q. You could see where that smoke was coming from that General Drake has talked about, too could you not?
A. Well, I don't know that I noticed about that, I supposed it was coming from the Tennessee Copper Company.

Mr. **Hill**: We except to that as a supposition and a conclusion.

Q. The fact is when the smoke comes down there it comes from the stack of the Tennessee Copper Company?

Gen. **Drake**: We except to that.

A. Everybodt always thought so; I don't know whether it does or not.

Gen **Drake**: We would rather the court would pass on that issue.

And further deponent saith not.

J. R. HERREN,
[SEAL.] By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this Nov. 6th, 1914.
R. S. C. HUTCHINSON,
Commissioner.

Mileage, 220.

Next witness W. W. **Thrasher**, for defendant, in rebuttal, having been first duly sworn, deposed as follows:

Examined by Mr. W. B. **Miller**:

Q. How old are you, sir?
A. I am forty-nine years old, or was the seventeenth day of last September.
Q. Where do you live; in what part of North Georgia?
1502 A. I live in about six miles of Copperhill, Tennessee, south; I live about six miles from the line between Tennessee and Georgia.
Q. And you live in what direction from Epworth?
A. South.
Q. Do you own any land down in that section?
A. Yes sir.
Q. Do you live on it?
A. Yes sir.

Q. Do you cultivate it?

A. Yes sir.

Q. Tell me whether there was any damage from smoke to your property or in your section from the first to the fifth of this last July?

A. This last July?

Q. Yes sir.

A. Well, there was smoke over there I remember during that month, but just what time I could not tell you; but there was some smoke through that country during July.

Q. Did you keep the date with a view of filing a claim against anybody?

A. Of filing a claim against the Tennessee Copper Company?

Q. Yes sir.

A. Yes sir.

Q. For damage. Well, now, had you put down the date in order to know when it occurred?

A. Yes. My wife put them down, and I turned them in, but — save my life I couldn't tell you; I haven't given them any thought; my wife put down the date the smoke came over there and to same my life I can't tell you the dates.

Q. What were you doing during those dates?

A. I was in the mines.

Q. And were you in the mines during the month of June?

A. Yes sir.

1503 Q. Of this last year?

A. Yes sir.

Q. That is this year, 1914?

A. Yes sir, this year, and last year; I haven't lost much time for two years.

Q. Do you remember whether or not the smoke drifted over in your section during the month of June, this last June?

A. I do not, sir; I do not know what time it came there.

Q. You don't know whether it was June or July, or what month it was?

A. No sir; it came there in both months to some extent, June and July, too.

Q. But you don't know what dates?

A. I don't know the dates. I had them there but I can't tell you what they were to save my life.

Q. Well, what was the extent of the damage finally compared to what it was before they put up those tall stacks?

Gen. DRAKE: I except to that question as calling for original evidence and not being in rebuttal.

A. Except for the last two years, the damage has not been as bad there as usual, for the last two years.

Q. How does it compare to what it was before the acid plants were erected?

A. It is not as bad as it was.

Gen. DRAKE: We except to that question as calling for original evidence and not in rebuttal.

A. (cont'd). I would like to know what company you are asking me on, now, about this damage. I understand I am subpœnaed here for the old company, the Ducktown Sulphur, Copper and Iron Company; I understand it that way.

Q. Yes. Well, now, may be you can tell us what company it is that, when the smoke is sent out down your way, sends it out?

A. Yes sir, I think I can.

1504 Q. Then which one?

A. I think the Tennessee Copper Company does.

Gen. DRAKE: We except to that as a conclusion, and not in rebuttal.

Cross-examination by General DRAKE:

—. Mr. Thrasher, you have worked for the Ducktown Company; you work for the Ducktown Company, don't you, the Ducktown Sulphur, Copper and Iron Company?

A. Yes sir.

Q. In the capacity of foreman in a mine?

A. No; I am a contractor.

Q. Is it because you have worked for the Ducktown Copper Company that you think it does not send out the smoke that does the damage, or what is it that causes you to think that?

Gen. DRAKE: We except to all the direct evidence of this witness as incompetent and irrelevant, and not being anything in rebuttal.

Q. (cont'd). Tell us why you think so?

A. Because I have studied and watched that, and their stack is not over forty or fifty feet high, and the smoke comes right out from it and settles down on the ground; and I have stood and watched it for hours at a time and I don't believe the Ducktown Sulphur, Copper and Iron Company has ever damaged the State of Georgia a nick*le*.

Q. Where does this smoke come from?

A. It comes from that high*t* stack right there, from the Tennessee Copper Company; there is where it comes from.

Gen. DRAKE: We except to all the evidence of this witness as being a conclusion and undertaking to settle the issues in this law-suit.

And further deponent saith not.

W. W. THRASHER,
By R. S. C. HUTCHINSON,
Commissioner.

[SEAL.]

1505 Sworn to before me this November 9th, 1914.

R. S. C. HUTCHINSON,
Commissioner.

Mileage, 220.

Next witness A. H. Chastain, for defendant, in rebuttal, having been first duly sworn, deposed as follows:

Examined by Mr. W. B. Miller:

Q. Mr. Chastain, where do you live?
A. I live in Fannin County, Georgia.
Q. About how far from Epworth?
A. Well it is something like three miles and a half or four miles.
Q. What direction from Epworth?
A. Well, it is nearly south, pretty nigh south.
Q. What business do you follow?
A. Why, I have been working at the mines for twelve or fourteen years.
Q. Do you raise any garden vegetables, or corn, or crops of any kind?
A. Yes sir, I farm a little in patches.
Q. You live on a farm do you?
A. Yes sir, my family lives on a farm.
Q. You have farming carried on?
A. Yes sir, a little every year.
Q. Tell us if there was any damage down in your section from July first to July fifth of this last year, this last July?
A. I don't know of any if there was.
Q. You didn't discover it if there was any in that country?
A. Not down there I did not, no sir.
1506 Q. In going back and forth to your work, did you pass through the crops and fields and along the woodland, so that you could see whether any damage was being done or not?
A. I came the big road, the public road from the mines home every Saturday night and back on Sunday night.
Q. Does that road wind through the woods and through the fields?
A. Yes sir, mostly through the woods; there are some fields along the route.
Q. If there had been any substantial damage down there in that section, would you know and see it?
A. It looks like I would have seen some; I never noticed any damage done to crops through there.
Q. Was there any damage done down through that section during the month of May, 1913; that was this last May a year ago, from the first of May up to the middle of May?
A. I don't recollect whether there was or not; I couldn't tell about that.
Q. If there was was it *if* any substantial amount?

Mr. Drake: We except to the question as suggestive of the answer.

A. I never had any to amount to anything. Smoke came in there and damaged a little; I noticed the potatoes pinched a little of my Irish potatoes.
Q. Mr. Chastain, how long have you lived down there?
A. I have been living there all my life nearly, excepting about two or three years away from there.

Q. Were you growing crops and gardens and orchards last year

A. I didn't have any orchard only just a few trees where I live there.

Q. If there had been any substantial amount of damage, any damage of consequence done down through in the month of May
1507 1913, do you think you would have known about it?

Gen. **Drake**: I except to the question for the reason the witness has already answered it twice, and said he did not remember especially about the date last year.

Q. I say, if there had been any at that time of any considerable amount, do you think you would remember about it?

A. It looks like I would: I haven't seen all the people to know whether the smoke hit anything to amount — anything. Down in Harpertown I notice- some trees there I believe there were some sulphur fumes burnt it along this last June.

Mr. **Fowler**: You mean June, 1914?

The **Witness**: Yes sir, 1914; yes sir.

Q. You say that was this last June?

A. Yes sir.

Q. What day this last June?

A. Well, it was along about the eighth and ninth, I believe of June; somewhere along there, the best I can recollect.

Q. And that was how far from the plant of the Tennessee Copper Company?

A. Why it was half a mile, I reckon, from the furnace across to where I noticed these trees being burnt; it might have been a mile.

Q. That is at Harpertown, a settlement near the Tennessee Copper Company's plant?

A. Yes sir; Harpertown is just across the river.

Q. Just across the river from the Tennessee Copper Company?

A. Yes sir.

Q. You spoke of your potatoe crops?

A. That was last June, I noticed my potatoes; I don't know whether it was the smoke; I judge the smoke did it; my leaves were crisped.

Q. That was June 1914?

A. 1914, that was last—no, that was this year; that is right; this year.

1508 Q. What about the drouth; did you have a drouth down
through your section during this last spring, and if so how severe was it?

A. Yes sir, it was dry all spring and on up until June and July, very dry: that is, potatoes—those potatoes, I suppose it was the smoke crisped them; that was my idea about it; I was not at home to know anything about any smoke being there, but when I went there I noticed the tops of the leaves were crisped a little, and I take it that the smoke did it.

Q. Irish potatoes are very tender?

A Yes sir, they are very tender.

Q. Was the damage of consequence?

A. Well, I couldn't say.

Gen. DRAKE: We except to the question as it calls for a conclusion.

A. (Cont'd.) I don't think it stopped making potatoes. It was the drouth that ruined our potatoes mostly.

Cross-examination by General DRAKE:

Q. I believe you say you have been working for the Ducktown Sulphur, Copper and Iron Company?

A. For the Polk County Company.

Q. For the Polk County Company?

A. I mean the Tennessee Copper Company.

Q. You were working for the Tennessee Copper Company?

A. Yes sir; I was not working for the Ducktown Sulphur, Copper and Iron Company.

Q. You go in the mines, do you?

A. No sir. I was—I kept the change house, furnished oil and looked after the oil.

Q. You stayed over in Copperhill then from Sunday evening until Saturday evening did you; you stayed over there most of the time?

A. I came home Saturday evening and went over there on Sunday.

1509 Q. You unsed to stay over there all of the time; is that what you mean?

A. I stayed there and came home Saturday nights and went back Sunday nights.

Q. You answered Mr. Miller a little while ago that you never saw that damage in going back and forth last year on the crops?

A. No sir.

Q. You did see quite a little bit of trees burnt all through there didn't you?

A. I saw those trees up in Harpertown.

Q. You saw them down in Harpertown?

A. No sir, just out in Harpertown was all I noticed.

Q. All you noticed?

A. Yes sir, all I saw.

Q. There were plenty of others burnt further south, were there not?

A. I can't tell you; if there was I never saw them.

Q. Well, if the smoke came over in there, of course you couldn't see it or smell it because you were not over there were you?

A. I say, I haven't been there to see any smoke, but I say, what I was telling you about was my potatoes.

Redirect examination by Mr. MILLER:

Q. If the smoke had damaged the timber and the orchards and the gardens down through there you could see that as you went back and forth home?

A. Yes sir, I think I could. I had as fine peaches on my place as I ever ate.

Q. You say you work- then for the Tennessee Copper Company?

A. Yes sir.

Q. Now at this time, along about the eighth or nineth of June, when you saw your pototoe vines had been scorched, I will
1510 get you to state whether or not the Tennessee Copper Company was running?

A. Yes, they were running then.

Recross-examination be General **Drake**:

Q. The Ducktown Sulphur, Copper and Iron Company was running also, was it not, the D. S. C. & I. Co.?

A. Yes sir, I reckon so. I suppose they were running I wasn't over there but I was working for the Company at that time, the Polk County.

Q. Have you ever worked for them?

A. I worked for them a good many years back; I worked for them.

Q. How many years did you work for them?

A. Well, I don't recollect how many years, I worked for the Ducktown. Sulphur, Copper and Iron Company. I don't know; I commenced helping when they were putting that track in there and put in the tracks from the Junction over to the old Isabella mine, and worked for them sometime: and then I worked for the Polk County I think I have worked for them about twelve years, for the Polk County.

Q. You have been working for the Copper Companies in that class of work how long?

A. Well, I have been there ever since it started up this last year; this last company you know. I have been away from there for as much as two or three summers, I believe.

Redirect examination by Mr. **Miller**:

Q. You have been working for the last few years for the Tennessee Copper Company; that is the long and short of it?

A. The last few years?

Q. Yes.

A. I reckon I worked for as much as ten years on a straight for the Tennessee Copper Company.

And further deponent saith not.

A. H. CHASTAIN,
By R. S. C. HUTCHINSON,
Commissioner.

[SEAL.]

Sworn to before this November 6th, 1914.

1511 R. S. C. HUTCHINSON,
Commissioner.

Mileage, 220.

Next witness, W. P. **Harper**, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by Mr. **Miller**:

Q. What business are you in Mr. Harper?
A. Well, I farm and I am a cattle inspector for Gilmer County this year.
Q. You are cattle inspector?
A. Yes sir.
Q. As cattle inspector ar- you required to be out in the woods much or little?
A. Yes sir, I am in the woods ever- day, or most every day.
Q. When you were out inspecting cattle did you pass through the woods and fields of the people generally in North Georgia?
A. Yes sir, through the woods and some on roads.
Q. Did you pass by fields and orchards?
A. Yes sir.
Q. Well, where do you live?
A. I live down in Gilmer County; I live two miles and a half west of Cherrylog.
Q. I will -et you to state whether there was any damage done down through your section by copper smoke this last year from the first to the fifth of July?
A. Of this year?
1512 Q. Yes sir.
A. No sir, I didn't notice any.
Q. If there had been any damage of consequence done down there at that time, would you not have noticed it?
A. Yes sir, I think so; I would have been apt to notice it.

Gen. **Drake**: We except to that evidence as being incompetent, not being in rebuttal of any proof offered by the State of Georgia, as the evidence of the State in chief was confined to Fannin County.

Q. Were you living down in that same section in the month of May 1913?
A. Yes sir.
Q. Was there any damage done through there from the first to the middle of May of that year?
A. I don't remember of any being done in the last year, that is, in that month. Now, the smoke was done along in June and July; we had some smoke in June and some in July.
Q. Of last year?
A. Yes sir.
Q. But none in May?
A. No sir; I don't think we had any in May.

Gen. **Drake**: We except to this evidence regarding last year in the month of May, from the first to the sixteenth on the ground that it is not in rebuttal of the State's evidence on that subject.

Q. Now, if the smoke had issued from either the plant of the Ducktown of the Tennessee Copper Company, and had simply boiled over into the North Georgia section from early in May on up until June, either of last year or this year, would you have necessarily have seen and known about it?

A. Yes sir, it would have been apt to have showed on my *my* crop some.

1513 Q. What occasion have you had to be out on the top or face of the mountains that face the Ducktown basin and that form a sort of southern rim of that basin?

A. You mean out about Flat top Mountain?

Q. Yes sir, any of those mountains where you can see the plant of the Tennessee Copper Company, facing that?

A. I had some spraying lots out there; I had some on Mr. Cox's place on the Flat Top; I had one at the Holloway Gap and one on the Fowler Field; that is all on the mountain.

Q. What do you mean by a "spraying lot"?

A. A place where people get up their cattle—the cattle that is on the range—get them up, to have them brought out and inspected and sprayed.

Q. You wanted to get the ticks off of them and keep them off?

A. Yes sir.

Q. And constantly were you out in that vicinity, the vicinity of your spraying lots that you have described?

A. Every two weeks.

Q. How long would you stay out there when you would go there?

A. I would stay a day out there, twice a month; I was out there twice each month, and spent one day on the mountain.

Q. How far apart were these spraying lots; you seem to have had three localities?

A. Well, they are about a mile and a half apart.

Q. And the people bring their cattle there from the various sections on the range to have you spray them?

A. Yes sir.

Q. You met and talked to people who had their cattle in that range, did you?

A. Yes sir.

Q. Now, tell me whether there has been during this last year, 1914, any substantial damage done down through that section to the timber or the crops?

1514 Gen. DRAKE: We except to the question because it suggests the answer.

A. I haven't seen but mighty little; the crops are mighty fine down in Gilmer County this season.

Q. Considering the drouth that you have had in that section as I understand, how do your crops compare to what they are in other sections of the country that are far removed from the Ducktown section?

A. I have not been away from Gilmer County very far; I have been in Gilmer County pretty well all the year.

Q. You did have a drouth down there?

A. Yes sir, we have had some dry weather down there; but I say crops are good, much better than common; we have had an extra crop of most everything with the exception of early beans.

Q. What is the nearest town of any size to you?

A. Ellijay.

Q. How far do you live from Ellijay and in what direction?

A. I live seven miles northeast of Ellijay.

Gen. FOWLER: What was the matter with your beans?

The WITNESS: Well, I couldn't say, unless it was the dry weather. We didn't have as good crops——

Mr. HILL: We except to the question and the answer as calling for and being a conclusion without any facts on which to base it.

Cross-examination by General DRAKE:

Q. Mr. Harper, have you or not had a suit or claim against these copper companies for damage?

A. I put in a claim before the Arbitrators last year.

Q. Did you ever have any before then?

A. No sir.

Q. You never filed a claim with any attorneys or anybody?

A. No sir.

1515 Q. Did you have a claim last year?

A. Yes sir, I put in my claim before the Arbitrators last year.

Q. And you swore to that claim and they settled it with you, did they not?

A. No sir, they did not settle it.

Q. You swore to your claim?

A. No sir, I didn't swear to it.

Q. You just put it in?

A. I just put it in.

Q. I believe the board didn't get to Gilmer County?

A. No sir, they didn't get to anybody there.

Q. They just paid the Gilmer County crowd?

A. I don't know what became of them, we didn't get anything.

Q. Is there any other W. P. Harper in Gilmer County?

A. Yes sir, I have an uncle down there in Gilmer; he got some money out of Ducktown last year.

Q. You spoke of having seen smoke down there. You have seen a great deal of smoke in those mountains in your travels?

A. This season?

Q. Last season?

A. I was not in there any last season in the mountains.

Q. You were in Gilmer County last year?

A. Yes sir.

Q. And you saw smoke in there last year didn't you?

A. We had some smoke there last year.

Q. Did you smell it?

A. Yes sir.

Q. Have you had any in there any time this year?

A. Very little; we had a little this year, but none to amount to anything this year.

Q. You know, sir, how the smoke does, don't you, Mr. Harper, with respect to not going to the same places on the same
1516 days; some days it will be i*n* one cove and may be the next
day it will be in another cove?

A. Yes sir, it will do that.

Q. And it don't go to the same place the same days?

A. Well, it generally comes down when the wind is from the north, it brings it in Gilmer County.

Q. And it has to be from the north before it will hit you, don't it?

A. Yes sir.

Redirect examination by Mr. MILLER:

Q. When you say your kinsman, Mr. Harper, got some money out of Ducktown, you don't mean he got it from the Ducktown Company?

A. My understanding was about that that he sued before the Farmers' Union by a lawyer in Atlanta by the name of—I believe his name was Duckworth or Drake, or something of that sort.

Q. You have referred to General Drake; the General Drake you have referred to was the General Drake who has examined you, was it not? And who got some money for your kinsman from the Tennessee Copper Company?

A. Yes sir, I think so.

Q. Now, you say you put in a claim for damage; your claim was against the Tennessee Copper Company also?

A. Yes sir, altogether against the Tennessee Copper Company; I really didn't think that the other company was doing any damage, or I don't know that they were not.

Mr. HILL: We except to that as being a conclusion.

Q. Now, suppose, Mr. Harper, that during this las*y* May, on the second, the smoke was all over Turniptop Mountain and Flat Top Mountain and Bush Head Mountain, and on May eighth it was all over the river north of Ellijay and on Turnip Top Mountain and on May eleventh it was all over Turnip Top Mountain and Flat Top
Mountain and Bush Head Mountain; and on May 13th it
1517 was all over the Ellijay River Valley *na*d Turnip Top Moun-
tain; and on May 14th it was all over Flat Top Mountain
and Bush Head Mountain and Turnip Top Mountain; and on May 16th it was all over Flat Top and Bush Head Mountains and Turnip Top Mountain; and on May 18th it was all over Flat Top and Bush Head and Turnip Town Mountains; and on May 25th it was all over Flat Top Mountain and Bush Head Mountain and Turnip Town Mountain; and May 26th it was all over Flat Top and Bush Head and Turnip Town Mountain; and on May 28th it was all over the Ellijay River Valley and north of Ellijay and east of Turnip Town Mountain *Mountain;* and on May 29th it was very strong in the Ellijay River Valley and on the mountains north and east of Ellijay; and on May 30th it was all over the Ellijay River Valley strong and

on the mountains north and east of Ellijay and on May 21st all over the Ellijay River Valley and the mountains north and east of Ellijay and on June 1st, it was all over the Ellijay River Valley on the mountains; and on June 5th it was all over the Ellijay River Valley; and on June 8th it was strong all over the Ellijay River Valley and Turnip Town Mountain; and on June 9th it was all over the Flat Top Mountain, in the Ellijay River Valley and Turnip Town Mountain; and on June 10th it was strong all in the Ellijay River Valley and all over Flat Top and Bush and Turnip Town Mountains; and on June 11th it was all over Turnip Town Mountain and Flat Top Mountain and Bush Head Mountain; now, if the smoke had been there in the volume indicated by this question or anything like that, do you think you would necessarily have known about it and seen it?

A. Yes, sir, I think I would.

Q. You say that is not correct?

Gen. **Drake**: We except to that as being leading, and because the witness had not testified that such conditions prevailed.

A. I didn't see any. It is like I have said, we have had
1518 some smoke but I haven't seen but little damage done; I
haven't seen anything bit with *with* it.

Q. Have you seen anything to even approximate the conditions related in my last question, namely, that the smoke was all over those sections on those dates?

A. No, sir, I haven't seen it down but mighty little this year; it has been down a few times, but it is mighty little.

Cross-examination by Gen. **Drake**:

Q. All you mean to say is that if it was down there in those sections on those days, you didn't see it?

A. No sir, I didn't see it.

Q. You don't know where you were on those days he has named?

A. I could if you wanted to get at my dates.

Q. I am talking now, you couldn't remember where you were on the fifth of June, could you, nor on the fifth of May, nor the 10th of May; I am asking you, Mr. Harper, can you remember where you were on those days?

A. I could soon get it up.

Q. I know, but answer my question; can you remember now where you —?

A. Right where I was at?

Q. Yes sir.

A. No sir, I can't tell you right plumb where I was at.

Q. And you don't know on a single day where you were?

A. No sir, I don't know right the place where I was at, but I was working in my territory.

Q. You have said that the smoke some days went to one place and on another day it would go another place, would it not?

A. Yes sir, that is the way it went. It comes down this way, and it will come over, when the wind is from the north, the smoke will come down and it will kind of spread out, and probably the next

day we will not have any smoke at all; it will be perfectly
1519 clear; we can't see any.

Q. You don't cover the whole of Gilmer County?

A. No sir.

Q. You have a certain section?

A. Yes sir; I have got the north west territory up there; my territory reaches down to Turnip T*wo*n County Road, leading from Ellijay in the direction of Dalton.

Q. You have the north west corner of the county?

A. Yes sir.

Q. Your territory don't take you over east to Ellijay and that Ellijay Valley country?

A. No sir; I do not work in Turnip Town Mountains; I just go to the railroad, but I haven't seen any smoke to amount to anything this season.

Q. You did not work in the Turnip Town Mountains nor in any of those mountains east of the railroad, did you; your work didn't carry you in there any at all?

A. No sir.

Q. And the conditions you have testified to are confined to the northwest quarter of Gilmer County?

A. Yes sir.

Redirect examination by Mr. MILLER:

Q. What mountains are included in you- territory and what mountains do you traverse?

A. Well, I am in the Potatoepatch Mountain.

Mr. FOWLER: Bush Head?

The WITNESS: No sir, I don't go on the mountains I am in that section I have a spray-pen right at the forks of Bush Head and Ducktown Road; that is right at the Bush Head Mountain; it is within half a mile of Bush Head Mountains but I didn't go out on top of the mountains.

Q. You say you go over near the foot of the mountain?

A. Yes sir, in half a mile of the mountain; and I also
1520 have a lot that I spray out in the Bear Den Mountain. I
have been on the Bear Den Mountain ever since May, every two weeks.

Gen. DRAKE: I want to except to this witness's answer to General Miller's general hypothetical question, on the ground that the witness has not been in, nor seen the conditions that obtain in all those mountains east and north east of Ellijay.

Q. Is the Bear Den a spur of Bush Head Mountain?

A. Yes sir, it is west of Bush Head Mountain.

Q And how about Flat Top Mountain?

A. That is west of Bush Head.

Q. You have been over and along that mountain?

A. Every few weeks.

Q. You have been on the sides of those mountains that face towards the Ducktown Copper Company's plant?

A. Yes sir; if you get on any of those mountains any of those high places, you case see the stack of the Tennessee Copper Company.

Q. Can you see the one of the Ducktown Company?

A. That is the Isabella Company?

Q. Yes sir.

A. No sir; no sir, you cannot see it.

Q. You can see the other one though?

A. Yes sir, you can see the other one; you can see the smoke coming out of the stack all right at about three places on top of the mountain there.

Q. You told General Drake that you could locate yourself by dates, if desired by him. I want to know if you have that book with you?

A. No sir, I haven't got it with me.

Q. You have no memoranda that shows the exact days when you were at any particular locality?

A. No sir. You see, went there every two weeks; that is twice a month.

1521 Q. Do you have a regular day to visit those sections?

A. Yes sir; every fourteen days.

Gen. DRAKE: I except to that, because it has been gone over thoroughly.

Q. Every fourteen days?

A. Every fourteen days.

Q. Did you begin on the first of the month or when?

A. No sir, I didn't begin on the first of the month; I would have to go to my book to get the exact dates. Now, my spraying days on the Flat Top Mountain are on Saturdays; I could go on the calendar and get the dates exactly.

Q. Now, how about your spraying days on the other mountains?

A. On the Potato Patch?

Q. Yes sir.

A. My spraying days on the Potatoepatch is on Thursday and Friday; I work there two days.

Q. Where are you on Tuesday and Wednesday?

A. On Tuesday I am at Old man Witherow's; that is down in the Valley.

Q. Which Valley?

A. Mountain Town Valley.

Q. That is the Valley of Mountaintown Creek?

A. Yes sir. And on Wednesday I am at Tom Park's. that is in Mountaintown Valley, on Mountaintown Creek.

Q. Where would you be on Tuesday?

A. On Tuesday I am at Witherow's.

Q. And on Mondays?

A. Well, on Monday I am at Hirshel Harper's; that is down the Mountaintown; that is every other week, you know.

Q. Yes. Then you were through a section of country there pretty extensively as I understand?

A. Yes sir; I am out on the work every day except Sundays.

Recross-examination by Gen. **Drake**:

1522 Q. Did you answer a while ago *the* you made all these points every two weeks?

A. Every two weeks; every fourteen days.

And further deponent saith not.

W. P. HARPER,
[SEAL.] By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this 6th day of November, 1914.
R. S. C. HUTCHINSON,
Commissioner.

Mileage, 260.

Next witness, T. M. **Bennet**, for defendant, in rebuttal, having been duly sworn, deposed as follows:—

Examined by Mr. **Miller**:

Q. Where do you live; in what *proption* of Georgia?

A. I live in Gilmer County, one mile north of Ellijay.

Q. What business do you follow?

A. I farm.

Q. You own a farm down there?

A. Yes sir.

Q. How long have you lived there and farmed in that section?

A. I have been there I guess thirty-five years, or a little more, off and on.

Q. Well, state whether or not there was any damage done down through your section by smoke from the first to the fifth of July, this last July?

A. Well, if there was, I couldn't detect it.

Gen **Drake**: I except to that question because it is not in rebuttal of the State's evidence on those dates.

1523 Q. Was there any damage done there during the months of May of last year, that was 1913, between the first and the middle?

A. Down there at my place if there had been any damage done there at all, I never saw it.

Gen. **Drake**: We except to that question and answer because it is not in rebuttal of the State's evidence on that subject.

Q. Do you live near any water course or mountain?

A. I live on Ellijay River.

Q. You live on Ellijay River.

A. Yes sir, more than a mile above Ellijay, on the river.

Q. You are acquainted up and down what is known as the Ellijay River valley, are you?

A. Yes sir.

Q. For how many miles up and down that river are you acquainted with that Valley?

A. Oh some five miles below Ellijay up to the head waters of Owltown.

Q. How far is it up to the head waters of Owltown (Wadetown)?

A. I couldn't say the distance; I guess it is somewhere near eighteen or twenty miles.

Q. You are acquainted probably eighteen or twenty miles one way and about eight miles the other?

A. About five miles; I am pretty well acquainted five miles below.

Q. What character of crops did the people grow down through that section this year?

A. Reasonably good crops.

Gen. DRAKE: We except to that as being original evidence and not in rebuttal.

Q. Did I understand you to say if there was any damage done through that section at all you did not recall it?

A. No sir, I cannot discover it, if there is.

1524 Q. If the smoke had drifted over through that section of country through the Ellijay River Valley, and just flooded it there repeatedly during the month of May and the month of June of this last year, would you necessarily have seen and known about it?

A. Well, it might have been possible it could have scattered a little and I never see it. I didn't notice it; understand I never noticed any from up there at all; I never smelt none.

Gen. DRAKE: I except to the question and answer for the reason it is not in rebuttal of the State's evidence on that subject. The state never claimed or proved that they flooded that community with smoke this year or last year.

Mr. MILLER: If the community referred to by you is meant the Ellijay River Valley, I don't want to examine the witness any further on that point.

Q. Mr. Bennett, what kind of crops were grown down in your section during the year 1913?

Gen. DRAKE: We except because original evidence, and not being in rebuttal.

A. I don't remember; I can't answer that question; I don't remember.

Q. That is last year; I ask you what kind of crops last year were grown?

A. It was a very good crop lasy year; it was a very good crop yrear; but I never paid any attention to it; I wasn't there; I was attending to my business this last year, I farm myself or have it done; I stay on the farm.

Q. How many acres of land do you own down there?

A. Betwixt 250 and 300, part of three lots; I don't know exactly; part of three lots.

Q. You grow various kind of crops?

A. Yes sir.

Q. Garden and field crops?

1525 A. Yes sir.

Q. Have you any orchard on your place?

A. Yes sir, I have an orchard.

Cross-examination by General **Drake**:

Q. Mr. Bennett, you say they never have damaged you where you live?

A. If they ever have, I have not been able to detect it.

Q. None whatever that you could detect?

A. No sir, no.

Q. You are in a good place down there to get out of it are you not?

A. I don't know; I can't say for that; I am far off from the mines.

Q. You have seen plenty of it down in some sections, of that country in North Georgia?

A. No sir, I have not.

Q. You never did see any smoke damage?

A. Yes sir, I saw it around Ducktown, back in around Ducktown there.

Q. Are you not a brick layer?

A. I am a brick-maker and layer, yes sir.

Q. I will ask you if you have not been working for the Ducktown Copper Company in that capacity, *on* in any capacity?

A. No sir; I never did work for but one company three days in my life, and that is called the T. C.

Q. You worked for the Tennessee Copper Company?

A. Yes sir, the other company, I never worked a day for it in my life. I was employed three days by the other company some ten or twelve years ago—three days.

Q. Now, as I understand you, all you state is if there is any damage done in that country, you have not seen it?

A. No sir, I never saw a bit last year or this year that I could tell anything about.

Q. How old are you, Mr. Bennett?

1526 A. I am about fifty-one or fifty-two years old, I guess; I don't know my exact age.

Redirect examination by Mr. **Miller**:

Q. You worked for the Tennessee Copper Company three days about twelve years ago?

A. Yes sir, nearly twelve years ago.

And further deponent saith not.

T. M. BENNETT,
[SEAL.] By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 6th, 1914.
R. S. C. HUTCHINSON,
Commissioner.

Mileage, 260.

Next witness, I. S. Davis, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by Mr. Miller:

Q. Where do you live, Mr. Davis?
A. I live out in Fannin County on Jacks River, as they call it.
Q. What is your post office?
A. Higdon's Store.
Q. Higdon's Store? How long have you lived on the Jacks River?
A. I have been there, I was raised there you might say, ever since I came there.
Q. And how old are you?
A. Oh, I am about thirty-four, along there.
Q. What business do you follow?
1527 A. Oh, I farm, is what I try to make my living at, but I don't make it much; that is what I follow though.
Q. What kind of crops do you raise?
A. Well, I work—my crops are good this year.
Q. What crops do you grow?
A. Just corn and *t*otatoes and such as that.
Q. Do you raise garden stuff?
A. Yes sir.
Q. Have you got any orchard?
A. Yes, I have got an orchard.
Q. And you have been living down there and farming practically all you- life?
A. Yes; well, I used to work at the saw mill a good bit ago a little bit; not much.
Q. What kind of crops do you say you *c*rew this last year, this year, 1914?
A. I got good corn.
Q. Was any damage of consequence done down through that section of the country by smoke this last year?

Gen. Drake: We except to it as calling for a conclusion and not being in rebuttal.

A. If there was any damage I didn't see it.
Q. How far away from your home, that is, how many miles are

you acquainted with the country up and down the Jacks River, and the Jacks River Valley?

A. Oh, I have been over around up and down it.

Q. Several miles each was?

A. Yes.

Q. Do you have occasion to go through the fields of your neighbors and through the woodland?

A. I have been all around through the country there, as far as that is concerned.

Q. Do you know how corn and potatoes and the leaves on trees look when they are affected by copper smoke, have you been up about Copperhill and seen it?

1528 A. I have seen it about Copperhill.

Q. If there is any thing like that through you- section you could not find it?

A. No sir.

Gen. Drake: We except to that as leading and suggesting the answer.

Q. How about the crops down through your section last year, 1913?

A. Why they were common crops, nothing extra; they were better this year than common.

Cross-examination by General Drake:

Q. You say you lived on the Jacks River?

A. Yes sir.

Q. You live in behind the mountain then coming from your house to the copper companies don't you?

A. Well, you have to cross the little mountain, yes sir.

Q. You live in the valley on the other side?

A. It is not much of a valley; just up on the head of the river.

Q. You are down on the river you have seen plenty of copper smoke damage over on the side of the mountains when you get next to these copper companies, have you not?

A. Well, I have been about the mines there; I [illegible]ght have noticed the dead timber along.

Q. That is what I say, over on the side next to the Ducktown Copper Company, all in that section, there is plenty of dead timber and dead leaves, and was all this summer, wasn't there?

A. I haven't been out that way this summer to notice; I have passed out to Higdon's Store, that is as far as I have been out that way. I have been over there in the winter; but I can't tell.

Q. You haven't been over in that section when the leaves were on the trees so you could see where it burnt them?

1529 A. No sir, I have only been to Higdon's Store.

Q. You have seen some white pines killed up in there last year in those mountains around Harkness's and all in that section?

A. I haven't noticed any. I have seen a few dead trees about but a fellow will see them any how.

Q. You never saw any smoke damage, did you?

A. Yes, I have seen it a little bit; it looks like it has killed some timber about the mines there.

Q. Right at the mines; did you ever work for them?

A. I never worked for them.

Q. That is all you have seen is right at the mines where it killed the timber?

A. Yes; I haven't noticed none in our country.

Q. The truth of it is you don't know smoke damage, do you?

A. I think I do when I see it, but I ain't saw it.

Q. You haven't seen any of it?

A. Not in my country.

Q. Have you been over about Epworth this year?

A. I passed through there about a week ago.

Q. You never came through there this summer or last summer?

A. I don't recollect it if I did; I was there along in the fall after the leaves fell, going to Ducktown.

Q. You never came through there when the leaves were on?

A. I might a year or two ago, but I don't recollect how long it has been; I will not say I did; mostly when I was through there was when the leaves fell.

Q. You confined your travel through there when the leaves fell?

A. It was when I was going to the mines peddling; I passed
through a time or two. I will not say it was a year or two;
1530 I recollect when I had mules up there in the summer time,
it has been a year or two ago. This year, I don't recollect, I
passed through there this summer. If I did, I don't recollect it,
since before the leaves fell.

Q. You say you farm Mr. Davis?

A. Yes sir, that is the way I make my living now; I am trying to farm.

Q. You have better crops this year than usual?

A. Yes sir, we have had better corn than has been in a year or two, I think.

Q. How much corn did you plant?

A. I don't 'tend no big crops, just a small patch; just for me and my wife.

Q. How much?

A. Just a common crop; five or six acres may be more than that; just a small crop is all.

Q. You all had a mighty bad drouth down there this year didn't you?

A. It was tolerably dry but it didn't hurt us mountain people.

Q. The drouth didn't hurt you this year, because you made the best crops you have made, ever made, didn't you?

A. Yes sir; the corn is the best; that is lately.

Q. If there was a drouth the drouth wasn't sufficient to hurt you?

A. No sir, it didn't hurt us on level land.

Redirect examination by Mr. Miller:

Q. What was it that you peddled up at Duc[illegible]wn; you say you go up there to peddle occasionally?

A. Oh, I ain't peddled none in—It has been—I was over there a little about a year ago; I took some hogs and apples and potatoes and such as that.

1531 Q. When did you grow*n* the apples and potatoes that you peddled up there?

A. Right where I live.

Q. Over on the Jacks River section?

A. Yes sir.

And further deponent saith not.

I. S. DAVIS,
[SEAL.] By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 6th, 1914.

R. S. C. HUTCHINSON,
Commissioner.

Mileage, 248.

Next witness, Ham Holt, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by Mr. Miller:

Q. How old are you?

A. Forty-three years old.

Q. Where do you live?

A. Blue Ridge, Georgia.

Q. What business do you follow?

A. I am a commercial man; a traveling man.

Q. What section *or* country do you travel through?

A. Pickens, Gilmer, Fannin, Union, Townsend, Counties in Georgia, Clay County, North Carolina and Polk County, Tennessee.

Q. One of those counties that you have named is in North Carolina and one in Tennessee, and the balance are all in Georgia?

A. Yes sir.

1532 Q. You travel, I believe, and sell to the trade along the railroads and in the country?

A. Yes sir, to the merchants through the country.

Q. You go out through the country?

A. Yes sir, regularly.

Q. How do you go through the country away from the railroads?

A. By a private conveyance, a buggy and horse; sometimes by automobile.

Q. Do you cover that North Georgia section, the counties adjacent to the Tennessee Copper Company's plant and the locality that is affect- by smoke pretty extensively or not?

A. No.

Q. Do you pass through the section of north Georgia that lies south of the Tennessee line along in the vicinity where they claim smoke does damage?

A. Yes sir, regularly.

Q. How regularly do you make trips there?

A. Part of it once a month, and part of it twice; I am among the towns every week.

Q. What opportunities do you have as you would pass through that section for observing or knowing whether the smoke, what is known as copper smoke would be doing any damage to the crops and timber and gardens?

A. Oh, I would see it, if it did any; sure I would.

Q. You would necessarily see it in your trips?

A. Sure.

Q. Well, now, tell us whether you have been in the vicinity of Epworth or Higdon's Store or Jacks River, any of those sections during this last season?

A. Well I go out by Epworth, right in sight of it, every Monday;
I work Copper Hill every Monday. I generally drive in Copper Hill
Sunday night and go to work on Monday; I go through Epworth
once a month, and out as far as Packs some call it Hell's
1533 Hollow, and as far as Jacks River and back through by
Chestnut Gap and back into Blue Ridge.

Q. Do you pass Higdon's Store?

A. Yes sir, once a month.

Q. You travel on the country roads as you make those trips?

A. Yes sir.

Q. Do those roads lead by fields and orchards and through woodlands also?

A. Yes sir.

Q. If the smoke would do any substantial damage through that section of the country, would you necessarily see and know about it.

A. Sure I would.

Gen. Drake: We except to that as being a conclusion.

Q. State whether or not there was any damage done by smoke through the Jacks River, Epworth or Higdon's Store Section during this last year?

A. You mean in 1914?

Q. Yes.

A. Well, on June 8th the Tennessee Copper Company blew a pipe, there was something that bursted and let the gas out on the 8th; I was in sight when it happened between ten and one o'clock, and I noticed it very closely. It didn't run up as far as around Epworth.

Mr. Hill: We except to that as being a conclusion, and as not being in rebuttal.

Q. You made some observations about that to see how far that smoke extended?

A. Yes sir; I drove on the public road and noticed it very closely.

Q. And that extended about how far from the plant of the Tennessee Copper Company?

A. Well, It was something like two and one half to three
1534 miles; not to exceed that.

Q. That was on what date?

A. On June 8th.

Q. How many days was it until they got that apparatus repaired so as to check the volume of smoke that was escaping?

A. That was the only — that I worked Copper Hill, on Monday. I understand they stopped it in a short time.

Mr. **Hill**: We except to that as being hearsay.

Q. And did you pass through that section thereafter from time to time?

A. Every Monday this year.

Q. Now, it is claimed, or has been maintained by somebody in this record, that from the first to the fifth of July this year, this last year, there was a great deal of smoke damage done through that section. Did you see any damage at that time?

A. No sir.

Mr. **Hill**: We except to the question as being leading, suggestive and calling for the answer desired.

A. (cont'd). I did not.

Q. If there had been any damage of consequence done in that section of country that lies southwardly and southeastwardly and southwestwardly from the Tennessee Copper Company's plant during that period, would you have known about it?

A. Yes sir.

Q. What sections of Gilmer County do you traverse, and how often—Gilmer Georgia.

A. In Gilmer County I always go out through what is called Deals, southeast and turn across into Gilmer County, southeast and come in about east of Ellijay.

Q. Near what mountains or water courses do you travel in Gilmer?

A. I go across the southeasterly part; I don't remember not in particular; it is a ledge of mountains all the way through.

1535 Q. Do you pass near any water courses in Gilmer County?

A. Cartecay River, I pass it once or twice.

Q. What direction do you travel from Ellijay in Gilmer County?

A. I go in there and travel south of the railroad, down through Gilmer and strike Pickens and Talking Rock.

Q. What character of crops have been grown through Gilmer County section this last year?

A. They are good, the best that have ever*y* been raised in North Georgia during the year 1914.

Gen. **Drake**: We except to the answer and the question as not being in rebuttal.

Q. Was there any damage done by smoke through that section?
A. I have not seen any this year at all.

Cross-examination by General Drake:

Q. Mr. Holt, You are what is known as a drummer; is that your line of work?
A. Yes sir.
Q. What line do you carry?
A. Groceries, for the Hazen-Trent-Harrill Company of Knoxville, Tennessee; My headquarters is in Blue Ridge.
Q. That is your home, is it?
A. Yes sir.
Q. How long have you been in this employment?
A. Since 1914, this year.
Q. Just this year?
A. Yes sir.
Q. Copperhill is the Biggest town in your circuit, is it not?
A. Yes sir.
Q. And the biggest business in that town is groceries, is it not?
A. Well, I don't know; it is a good business town.
1536 Q. Outside of the Copper business the people who live there in that town, and the town, are dependent on this copper company for existance, are they not?
A. Not quite as much as on the farms outside.
Q. Don't you know that nine tenths of the people who live in Copperhill work for the Tennessee Copper Company?
A. Well, now, they live there when they work there, but the most of them live in North Georgia, seventy-five per cent of them.
Q. Don't you know they live there and work most of the time and go home occasionally?
A. Oh, well, it is public works; it is the only money place in that country—a place where they can make ready money to pay their taxes.
Q. Don't the people who work for those mines have to buy every thing on earth they eat from the grocery stores?
A. They buy that from wagons that come in there.
Q. And the grocery stores, they don't raise gardens there to amount to anything?
A. I have seen as fine gardens around there as grow in the state.
Q. Answer my question.
A. I am answering it. What is it you want me to answer?
Q. I asked you if practically all the people in Copperhill don't have to but their vegetables?
A. No, not all of them.
Q. Answer the question; don't practically all of them?
A. I mean the working men; when a man works who has got land enough to make a crop.
Q. Don't you know there isn't one man in ten that gardens that has a garden in Copperhill?

A. That is because they haven't got the real estate.

Q. Answer my question, please, Mr. Holt.

1537 A. They buy them, those that haven't got gardens to raise stuff on; they have to, of course, if they live.

Q. Is there one in twenty-five who live in Copperhill that has any garden whatever?

A. Every one who has a garden spot has got something.

Q. You know that is not answering my question, do you not, Mr. Holt?

A. I don't understand.

Q. I will ask you again.

A. Well, now, let's hear it.

Q. Is there one man in twenty-five in Copperhill who has got a garden?

A. I have never went around and check up them to see.

Q. Is there one man in ten who has got a garden in Copperhill?

A. Well, that is something I don't know; I never went around to see the garden spots; all I see is as I go traveling up and down there.

Q. You don't aim to answer my question.

A. I told you a minute ago that those that has not got gardens has got garden stuff to buy.

Q. Don't you sell nine-tenths of your stuff in Copperhill and Ducktown, Tennessee?

A. No sir; I have got a big trade all over my whole territory.

Q. Isn't the bulk of your trade in those towns?

A. No sir; Nelson, Georgia, Tate and Marble Hill are the biggest towns in my territory.

Q. The largest bulk of your trade sold in this smoke zone is in Copperhill, is it not, and Ducktown?

A. No sir, my work, honestly, is about equally divided; my record shown that.

Q. How is that?

A. I have no better trade in one place than in another; I sell them all.

1538 Q. Don't you know you sell ten times more groceries in Ducktown and Copperhill than in North Georgia?

A. I do because there are so many more concerns.

Q. Don't you know that the bulk of your trade is in those two places, in the smoke zone?

A. No, I can't answer you; I never figured it up to see how much I do sell there.

Q. Have you not just said you made that town every Monday, and you make these others only every month?

A. I make Nelson and Tate every Saturday.

Q. Don't you know Nelson and Tate are not in the smoke zone; don't you know they are fifty or sixty miles below Ducktown?

A. More or less.

Q. Answer the question first, and then explain.

A. I have got certain towns I have to make on certain days; I have got my days lined up.

Q. Answer my question; Ar-n't Tate and Nelson fifty to sixty miles or over from this copper country?

A. It is about forty-two miles, I believe to Nelson, and Tate.

Q. Don't you know that the reason you make Copperhill every week is that it is a favorable point from your standpoint as a drummer?

A. Why it is a good place for my groceries, but I have got my territory arranged which I go to on cetrain days, and if I didn't sell $50.00 worth I would go; I have got my days lined up for each part of my territory.

Q. And that is all the reason you base that on?

A. I have got it, as I say, lined up, every day in the week.

Q. Your answer is that the reason that you go to Copperhill and Ducktown every week, and the only reason is, because you
1539 have got your day set?

A. It is a good trade, and I have got my trade there, and I have certain days to go whether I sell a nick*le*'s worth or not.

Q. You refuse to answer that the reason you go there is because its trade is more important there than in these little country towns in North Georgia?

A. I say the reason I have to work Ducktown is, I work back this way; I go through Ducktown Sunday night and drive to Hiawassee and work back this way, and drive back into Epworth and in home Monday night.

Q. How many customers have you got in Ducktown and Copperhill?

A. I sell to pretty nearly all of them.

Q. How many?

A. I can't tell; sometimes I go in and don't sell $2.00 worth, and sometimes I sell $15.00 or $20.00.

Q. Haven't you got intelligence enough to know how many customers you have, and what I mean by a customer?

A. Well, I perhaps sell, I will say fifteen customers there.

Q. In the two towns or the one town?

A. In the two. I don't try to sell them all.

Q. There is no other town in that smoke zone that has got as many as fifteen grocery stores, is there?

A. No sir. Every store carries groceries.

Q. In one town I am talking about?

A. Well, I guess they do; there are more people there.

Q. By "more" you mean that Ducktown and Copperhill have got more?

A. Yes, the population is greater. It is a manufacturing town; there are quite a lot of people there—not manufacturing, but they call it a mining town.

1540 Q. Now, you say once a month you go through Epworth, and from there on to Higdon's Store?

A. To Pierceville and down there.

Q. Down by Pierceville and up to Higdin's Store, and that section. Going through Pierceville and Higdon's through Epworth, what branches or creeks are you carried across?

A. Fightingtown Creek.

Q. There are two of those creeks, ar-n't there; Little Fightingtown and Big Fightingtown creeks?

A. I never did pay any attention to Big Fightingtown; the reason I pay so little attention to it is because it has got a rough ford.

Q. Don't you pass another ford?

A. I pass several branches but I don't know them now.

Q. Wasn't you through there this last week?

A. Yes sir.

Q. On what day?

A. I go through there once every month, I have this year.

Q. You don't know what day of the week in each month you go through that section?

A. No, I have no certain day; I have to catch it when the water courses are not up.

Q. You were through there during the month of August?

A. Yes sir.

Q. And you swear there was no smoke injury on that road anywhere?

A. If there was I didn't see it.

Q. And that is all; you don't say there wasn't?

A. There is so much agitation and excitement about it that I would likely have seen it.

Q. If a dozen or two or half a dozen good citizens of North Georgia swear that the timber was burnt badly all through there, you would be inclined to believe them, would you not?

1541 A. If I had seen it I would.

Q. You wouldn't believe it unless you saw it?

A. Oh, if they were men that I kn-w personally and swore it I would.

Q. If three Government experts that were entirely disinterested swore that section all along that road had nine trees out of ten that were burned with smoke, you wouldn't believe it?

A. I would believe it if they came and told me.

Q. But if they swore it would you believe them?

A. Yes sir.

Redirect examination by Mr. **Miller**:

Q. That is, you would if you had not seen it and knew that it is not so?

Mr. **Hill**: We except to that as leading and suggestive?

A. How is that?

Q. If you had been there yourself and saw it, then you would not have believed it?

Mr. **Hill**: We except to that as leading, suggestive and calling for the answer desired.

A. I don't know what territory they were in. I mean on my territory I didn't see any.

Q. On the territory that you passed through, the conditions were not such as General Drake stated, that nine trees out of every ten were dead?

A. I didn't see any.

Mr. Hill: We except to that.

Q. Well, now, Mr. Holt, where do you make your home?

A. At Blue Ridge.

Q. You have lived there for how long?

A. Well, I have made it my home for sixteen years I was raised at Ellijay.

Q. Has the smoke done any damage this last season in the Ellijay section?

1542 A. None that I have seen. Do you mean in 1914?

Q. Yes sir.

A. None that I have seen.

Gen. Drake: We except to this as not being in rebuttal.

Q. Do you know a man named J. Y. Allen?

A. Yes sir, I ought to know him; he is my father-in-law.

Q. How close do you live to Mr. J. Y. Allen?

A. He lives with me; pretty close.

Q. You say you don't know how many people have places to raise gardens up in Copperhill and Ducktown, but those who do have places to raise gardens, do they raise gardens?

A. They sure do.

Q. And what kind of gardens are they?

A. They raise cabbage and beans and roasting-ears and pumpkins and tomatoes.

Q. Do they look to be in healthy condition and thrifty?

A. They are as fine this year as I stated a while *at* ago as I ever saw them.

Gen. Drake: We except to that answer as not being in rebuttal, and for the further reason that it is immaterial and incompetent, whether it injured any of Tennessee's crops, gardens, forests, etc.

Q. You sell groceries, I believe?

A. Yes sir.

Q. And you say you sell to a good many people in Copperhill?

A. Yes sir.

Q. You sell a good line of groceries and sell to a good line of people?

A. Yes sir.

And further deponent saith not.

HAM HOLT,
[SEAL.] By R. S. C. HUTCHINSON,
Commissioner.

1543 Sworn to before me this 6th day of November, 1914.

R. S. C. HUTCHINSON,
Commissioner.

Mileage, 260.

The further taking of depositions was here adjourned to 1:30 P. M. at which time same was resumed.

Next witness J. W. CLAYTON, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by Gen. FOWLER:

Q. Mr. Clayton, where do you live?

A. Well, my home is in Atlanta, has been for a number of years, but I have made my home for a few years at my orchard down here in Gilmer County; in fact I have had a home there for eleven years.

Q. Do you own a farm in Gilmer County, Georgia?

A. Yes sir.

Q. How far from Ellijay?

A. The way the land lies it is about five miles.

Q. In what direction?

A. Due east.

Q. How long have you owned that farm?

A. Eleven or twelve years; twelve years next February.

Q. How long have you resided on it?

A. Well, I have been on it at intervals ever since I have owned it, several times during the year until the last few years; I have been there constantly for the last three years; I have been there nearly all the time.

1544 Q. What kind of crops do you cultivate on that farm?

A. Fruit, apples and a little bit of farming otherwise, that is a little hay and corn, oats and peas.

Q. How many fruit trees have you upon the farm?

A. Well, approximately, I would say about four thousand.

Q. What kind of trees are they?

A. Well, they are apple trees and a few pears and a few peaches.

Q. Do you know where Mr. Northcutt's orchard is located?

A. Yes, sir.

Q. How far is it from your orchard?

A. Mr. Northcutt's orchard I suppose is a mile and a half away.

Q. In what direction?

A. Right west, or perhaps a little over; a mile and a half.

Q. You know where Mr. Arnold's orchard is located?

A. Yes sir.

Q. Where is that with reference to your orchard?

A. It is the same only his lies on the north of Northcutt's.

Q. Are there any other orchards in that vicinity except yours and Mr. Northcutt's and Mr. Arnold's?

A. Yes sir; there are a good many little orchards; these are the only commercial orchards that I know of.

Q. Who has the largest orchard in there?

A. I suppose Mr. Arnold's is the largest one; either his or Mr. Northcutt's is the largest in the country.

Q. How old is your orchard?

A. Eleven years old, that is the part that I set out. There were some two or three hundred trees there that were on the place when I got it; the ages range from twelve or thirteen years to probably fifty or sixty.

Q. Have you given special attention to your orchard during the present season?

1545 A. Yes sir.

Q. State whether or not your orchard has been damaged during this season of 1914 by smoke fumes?

A. Well I couldn't say that it has been damaged; I haven't seen anything that I could attribute to the smoke in the way of damage; in fact I have seen no damage that I know of.

Q. What kind of a crop have you had this year?

A. I had corn, peas, and *cain*; peas and *cain* for hay, and corn, and I had a little garden stuff and oats, I had oats in the spring.

Q. Have your vegetation of the kind you have mentioned been injured by smoke fumes?

A. Not that I could tell; not that I could see.

Gen. DRAKE: I except to the question and answer as original evidence and not in rebuttal.

Q. What character of a fruit crop have you had during the present season?

A. What character of fruit?

Q. Have you had an average fruit crop or better or worse; what is the kind of a fruit crop that you have had?

A. I have had a better crop this year tha*t* usual.

Gen. DRAKE: I except to the question and answer as being original evidence and not in rebuttal of any thing proved by the State in his case.

Q. Have your crop- of apples been damaged in any way, if so from what cause?

Gen. DRAKE: I except to that as irrelevant, and not being in rebuttal.

A. If it has been damaged at all, I don't -call it—except, of course, there are some diseases that have injured it some, that we have not controlled entirely with our spraying.

Q. Mr. Clayton, state whether or not you have made a special study of the diseases of fruit trees? 1546

A. Well, off and on, yes sir, a pretty close study of it.

Q. Have you read literature on the subject?

A. Yes sir.

Q. To what extent have you studied the subject?

A. Sir?

Q. To what extent have you studied the subject?

A. Well, I have studied—I have read constantly the bulletins from the experiment stations written by the leading horticulturists of the country, the Government Bulletins, and the special bulletins, not only of the state but of other states, issued by the experiment stations.

Q. And while reading literature upon the subject, have you also observed your own orchards?

A. Yes sir.

Q. And experimented with your own trees?

A. Yes sir; I have been spraying them for three or four years. I commenced in a small way at first, and have increased it from time to time until now I spray thoroughly.

Q. State whether or not, Mr. Clayton, you have examined during the present year Mr. Northcutt's orchard?

A. I was in a portion of it.

Q. When was that?

A. Well, I cannot give you the exact date, but I think it was about four or five weeks ago.

Q. Have you or not examined Mr. Arnold's orchard?

A. Yes sir I was there at the same time.

Q. Who were with you when you made those examinations?

A. Well, my brother Mans. Clayton was with me; he is the only one *one* who was with me.

Q. At whose instance was it that you went to the orchards and examined them?

A. Well, I was asked or requested to go; my brother asked me to go, at the request, I suppose, of some of your people may
1547 be Mr. Reese here; I am not sure.

Q. State whether or not you observed a portion of those orchards with care?

A. I did, part of them, yes, where I went to examine; I examined them pretty close.

Q. Did you see any thing wrong with the trees in those orchards; if so, please state what it was?

A. Well, the worst thing that I saw I think was the lack of cultivation.

Q. In what condition were the trees?

A. Arnold's orchard do you speak of?

Q. I am talking of Mr. Northcutt's orchard; in what condition was it?

A. His was in a pretty bad condition; I didn't see any of it but what is in a pretty bad condition, what I saw of it; I didn't see very much of it.

Q. Were the trees affected in any way by any disease?

A. Yes, I think they had a considerable amount of leaf-spot or frog-eye as it is called by horticulturists.

Q. I wish you would describe just what kind of a disease that is, and what its effect upon the tree is?

A. It is a disease that attacks the foliage it is a parasite; and it commences by causing little specks on the foliage; there is an invisible parasite there that seems to kill the leaf where it touches and it spreads and they become numerous on the leaves and finally the leaf will turn yellow and drop off.

Q. Does it effect the entire tree?

A. Yes sir, it usually gets all over the tree, and the foliage will finally fall off where it gets very severe. It wasn't, up there, so severe as that, in Mr. Northcutt's orchard it wasn't enough there to make it shed the foliage, not much of——

1548 Q. Was there full foliage on the trees when you were there?

A. I think there was pretty full foliage what I saw of it.

Q. Did you notice that disease was present in the orchard?

A. Yes sir.

Q. To what extent was it present?

A. It wasn't very bad.

Q. Does that disease have any effect on the fruit?

A. Yes sir, it has the same effect on the fruit as on the leaves or more so.

Q. Does it speck the fruit?

A. No, but the fruit won't mature and it won't color, and it don't reach—it never reaches that state of ripeness or maturity to give it that flavor that fruit ought to have.

Q. Are you speaking about that both from your experience and also from your knowledge acquired by reading upon the subject?

A. Both; I have read it that way and I have found it so by experience.

Q. Have you had that disease in your orchard?

A. Yes sir I have had it pretty bad.

Q. Does that disease kill the trees?

A. I have never seen any tree die from it, but I have seen them almost stripped of their foliage, and the fruit will fall off before it matures.

Q. Did you find that disease present in Arnold's orchard?

A. Yes sir.

Q. To what extent was it present in his orchard?

A. It wasn't very bad; it wasn't bad; it was only in places. Failure to cultivate increases this disease. It developes more rapidly where the trees are not cultivatd.

Q. Was it as bad in Arnold's orchard as in Northcutt's?

A. Well, I couldn't say as to that; I don't remember.

1549 Q. How had Northcutt's and Arnold's orchard been cultivated?

A. Very poorly; they didn't look as if they had been cultivated at all this season, but I suppose they had been cultivated earlier in the season; anyway they said so; but they were grown up in heavy weeds waist-high and as high as my head.

Q. Did or not the trees give evidence that they had not been well cultivated?

A. They certainly did.

Q. What other kind of disease, if any, did you find in Northcutt's and Arnold's orchards besides the one about which you have just spoken?

A. I saw some scale; I didn't see any diseases very bad, that is, I did not notice any that were effecting the trees or the fruit very seriously except for the lack of cultivation more than any thing else, and in places where the soil was very poor and neglected the trees showed signs of—I didn't see any signs of disease but then of course, I didn't see any signs of thrift, and the foliage was looking bad on them.

Q. You speak of "scales;" what do you mean by that?

A. The San Jose scales.

Q. What kind of a disease is the San Jose scale?

A. It not a disease; it is an insect; it is an insect on the branches, the limbs; it is not a disease at all, as I would call it; it is an insect, a little insect that you can see with the natural eye without the aid of a microscope.

Q. State whether or not they will kill a tree?

A. They certainly will.

Q. How long does it take the San Jose scale to kill a tree?

A. About two years.

Q. Did you see that disease in either one of those orchards?

1550 A. Not bad; no sir; I saw it some.

Q. Did you see it to some extent?

A. Yes sir, I saw some.

Q. Did you see some in both orchards?

A. Well, I did not examine the Northcutt orchard enough to nitice it; I don't remember really; I don't hardly think I noticed it in the Northcutt orchard, I didn't go clear into it.

Q. Did you notice any other diseases beside the Spot and Scale in either of the orchards?

A. Yes, I saw fing-us diseases on the fruit.

Q. What is the nature of those diseases, and what was the appearance of the fruit?

A. Well, the specks—there were specks in the fruit; decayed specks; rotten specks; and there were two or three kinds of fung-us disease. I saw Black Rot I believe and the Bitter Rot—those two fung-us diseases—and I saw also a kind of a sooty fungus, and I think I saw some Blotch, that injures the apple and prevents it from developing, the Blotch does.

Q. To what extent were the orchards effected by these fung-us diseases?

A. Well, I wouldn't say very badly affected by those diseases.

Q. State whether or not you saw any evidence what ever in either of those orchards of an injury from smoke fumes this year?

A. I couldn't say I did. I don't know—I am not familiar with smoke damages but I didn't see anything unusual any more than what I could account for from other causes.

Q. State whether or not you have some diseases more or less in your own orchard?

A. Yes sir, I have some in my own orchards about the same thing; these orchards reminded me very much of a part of my orchard, about three acres that I have that I don't cultivate nor fertilize
1551 nor spray, and it looked just like that.

Gen. Drake: I except to all that evidence as being irrelevant, the comparison with his orchard as being irrelevant.

A. (Cont'd.) That is, I did cultivate it myself but not enough, not near enough and spray them enough, and prune them and in fact fertilize them enough; that is the way I want to put my answer to that proposition.

Q. Have you ever won any prizes on apples?

A. Yes sir.

Q. When?

A. Last year; last fall, November.

Gen. Drake: I except to that as being irrelevant, immaterial and not rebuttal. It could in no ways reflect any light on the issues in this case as to who won any prize or did not.

Q. Was that in 1913?

A. Yes sir.

Q. Where did you produce those apples?

A. On that farm, in those orchards there that I have been speaking of.

Q. What kind of apples were they?

A. Well, I had different varieties. You mean the names of the varieties?

Q. Yes.

A. I had six varieties including Limbertwigs, Sharpley, Yates, Stump the World, Kennards Choice and King David; I won four first and two second prizes.

Q. Where were those apples exhibited?

A. At the New York State College of Agriculture at Utica, Cornell University.

Q. Over what territory did the contest extend?

A. The United States. I had information from the faculty or
the manager of the fair or of the show, rather, of the Agri-
1552 cultural Department, that there were apples there from apple-
growing sections in the United States, and there were 130
different varities in the competition.

Q. How many first premiums did you take?

A. Four first and two second.

Gen. Drake: We except to all that as being incompetent and not in rebuttal and irrelevant.

Q. Mr. Clayton, have you observed the forests in your section of the country for the purpose of determining whether or not there has been any smoke injury there during the present season?

A. Well, to some extent I have around my place there.

Q. Has there been any?

A. Not that I can see. I saw nothing the matter with the foliage on the timber.

Q. You haven't been up on the Turnip Town Mountain?

A. No. I was across to the Arnold orchard through the forest from my place, a distance of a mile and a half.

Q. In going through the forest to Arnold's orchard, did you observe the forest to see whether or not there had been any injuries?

A. Yes, sir, I noticed to see.

Q. Did you detect any?

A. I did not, unless it was, I saw some trees—occasionally I would see a tree, just as you would in going through the woods, with the foliage on the under sides that seemed to be dying a little early for the season.

Q. What do you mean by the under side?

A. The under limbs, the under branches, there seemed to be dying.

Q. Did you or not have considerable drouth through your section?

A. Yes, sir, we did in the spring. I didn't see very
1553 much of that.

Q. State whether or not those leaves about which you speak were the least exposed leaves on the tree, those that were underneath?

A. Yes, they were the least exposed.

Q. Did you observe any other section of your vicinity there other than the one you have mentioned with reference to injuries to the trees?

A. No, sir. Did I observe—Did I notice it, do you mean?

Q. Yes?

A. Yes, I noticed on the road from my place to Ellijay.

Q. Did you see any indications of any disease through that section?

A. I did not, not any thing unusual.

Q. Have you noticed the crops in that same vicinity?

A. Yes, sir.

Q. This season?

A. I have noticed the crops too.

Q. Have you seen any evidence of any smoke injury to any of the growing crops?

A. I have not; I have seen nothing the matter with the crops.

Q. What kind of crops have they raised this year through that section?

A. Very good crops; very good crops. You mean, whether they were good or bad or fair?

Q. Yes, sir.

A. Yes, sir; they were good crops.

Q. How did they compare with other years?

A. It was about the average, I think.

Q. And you have known that section for how long?

A. Ever since I was born.

1554 Q. Were you raised up in that section of the country?

A. Yes, I was raised there but I lived away from there for ten years, and previous to that time I was away for quite a number of years.

Q. Mr. Clayton, were you present when any photographs were taken near that place, your place, or in that vicinity?

A. Yes, sir.

Q. Do you remember who it was that took those photographs?

A. Why, yes, sir; Mr. Thompson.

Q. Was Mr. Reese present?

A. Mr. Reese was present.

Q. Do you think you would recognize any of the localities photographed if you were shown the pictures?

A. I think so.

Q. I show you a photograph which is number 65, dated September 8th, 1914, James E. Thompson, Photographer; state if you recognize that locality, and if so, please state where it was taken?

A. Yes, sir, I recognize it.

Q. Where was it taken?

A. Right at my barn, right above, on my place.

Q. Are those your apple-trees that are shown there?

A. Yes, sir.

Q. And is that your corn patch?

A. Yes, sir.

Gen. DRAKE: I except to that evidence and photograph because it is not in rebuttal: there was nothing taken by the State in regard to this orchard of Mr. Clayton, and for that reason it is incompetent.

Q. I show you photograph number 66 of the same date; do you recognize that place; if so, state where it is?

A. Yes, sir, I recognize it.

Q. What is it a picture of?

1555 A. It is a picture of the orchard and apples more especially of one tree there.

Q. Is there any trouble with the tree?

A. No, there is nothing wrong with the tree.

Gen. DRAKE: I except to that photograph and the answers to the questions, for the reason that it is not in rebuttal, State of Georgia took no evidence relative to the witness's orchard.

Q. I show you photograph number 67 of the same date, Mr. Clayton. Do you recognize that picture? Do you recognize what that is a picture of; if so, please state what it is and where it is?

A. Yes, sir, I recognize that. That is in my orchard right above the last picture.

Gen. DRAKE: We except to that photograph for the reason stated in objection last above.

Q. I show you photograph number 68, the same date. See if you recognize the place of that photograph and state what it is?

A. Yes, sir, I recognize that; it is a Ben Davis Apple tree in my orchard.

Gen. DRAKE: We except to that photograph for the same reason stated above.

Q. I show you photograph number 69 of the same date; please state of what that is a photograph?

A. That is a picture of a Ben Davis apple tree in my orchard.

Gen. DRAKE: We except to that for the same reason stated above.

Q. I show you photograph number 70, of the same date; state of what that is a picture?

A. Well, I recognize that picture; it is a general view of one of the orchards.

1556 Q. One of your orchards?

A. One of my orchards looking north from my residence.

Gen. DRAKE: We except to that because it is not in rebuttal the State of Georgia took no proof in regard to this witness's orchards.

Q. I show you photograph number 71, please state of what that is a photograph?

A. That is a picture of the orchard looking west.

Q. Do you mean of your orchard?

A. One of my orchards.

Gen. DRAKE: We except to the last question and answer for the same reason stated above.

Q. State whether or not, Mr. Clayton, those pictures are a correct representation of the condition of those trees and orchard at the time they were taken?

A. Yes, sir, they are a fair representation.

Cross-examination by Gen. DRAKE:

Q. Mr. Clayton, are you an expert on diseases *to* trees?

A. I do not claim to be.

Q. Are you a botanist?

A. No, sir.

Q. Are you an entomologist?

A. No, sir.

Q. Or any of those related sciences; have you ever studied them or graduated from any school on them?

A. No, sir. I have studied ever since I have been in this orchard, since I have been developing and growing this orchard only.

Q. What kind of disease is that frog-eye on apples; what causes it?

A. I can't tell you.

Q. You don't know anything about the history of that disease, do you?

1557 A. No; I never studied the history of it; I have studied the effects.

Q. That is all you know. You don't know it to be a fact that if smoke was to come down and damage an orchard, or any other like cause it would cause Frog-eye to set up in it, do you?

A. I don't believe it would.

Q. You don't know whether it would or not do you, if you don't know what the disease is?

A. Yes, I think I know it would not.

Q. How is that?

A. I think I know it would not.

Q. If you don't know what Frog-eye is, how do you know that smoke coming on it won't cause it?

A. Well, most any body ought to know that, I think.

Q. I don't want that answer; I want to know why most any body would know it?

A. I don't claim to know the scientific parts of these things; I only know from experience and from reading after hort-culturists and applying the remedies that they prescribe.

Q. You are no expert on smoke injury, are you, either, Mr. Clayton?

A. No, sir.

Q. You have never studied it have you?

A. No, sir, I haven't seen enough of it to know.

Q. You don't know the various effects that sulphur smoke might have on vegetation of different kinds, do you?

A. No, sir.

Q. If it has one effect on one kind of plant growth, and a different kind of effect on another kind of plant growth, you don't know that, do you?

A. No; I have never seen it to know it, except as I came along on the train the other day.

1558 Q. What color are these spots that you call Frog-eye?

A. They are brown at first, or yellow, rather; well it is just the color of an apple-tree leaf when it is dead.

Q. Well, now, Mr. Clayton, if experts, who have made a life study of those things, should say that Frog-eye does not hurt fruit, affect the crop of fruit, then you would conclude it was not frog-eye that orchard had, would you not?

A. No, sir, I would not.

Q. If all the authorities in the world should say that Frog-eye does not hurt fruit, would you still say that it was Frog-eye and that it did hurt this fruit?

A. Well, I might decide—put the question again.

Q. Would you still stick to it that that was Frog-eye, when you say it did injure that fruit up there?

A. It is what they call Frog-eye, I would say.

Q. Would you still say it was Frog-eye if the recognized authorities of the world have said or should say that Frog-eye does not hurt fruit?

A. Well, if that *id* Frog-eye I would say that it does hurt it; if what they call Frog-eye there is Frog-eye or leaf spot in the Agricultural literature.

Q. You don't know what it is from your own knowledge, do you?

A. No, just from what I read and from what I see.

Q. You don't know enough about the history of this disease to go into an orchard and make a microscopical examination of it and say from a scientific standpoint that that is Frog-eye, do you?

A. Not from a scientific standpoint, no.

Q. All you know about it is from just casual observation; you know that the leaf turns brown?

A. Yes, and from plates that the experiment stations make—illustrations.

1559 Q. I believe you said you didn't know the cause of Frog-eye?

A. I have never studied it that far back to know how it originated, no.

Q. Is it an insect?

A. It is said to be a parasite.

Q. It is said to be a parasite?

A. Yes, sir.

Q. Is that an insect?

A. It must be; it is a species of an insect, I suppose.

Q. I could be a parasitic insect, and very often is, is it not?

A. It may be, I don't know. Well, it might be; I don't know the distinction between a parasite and insect scarcely.

Q. You don't know how to distinguish between a parasite and an insect?

A. Well, hardly. I don't know that I could tell exactly.

Q. Mr. Clayton, your orchards are located right behind, a big mountain from the Ducktown and Tennessee Copper Company's plants, are they not?

A. Yes, sir.

Q. And these other orchards we have been speaking about are more exposed?

A. I suppose so; yes.

Q. I will ask you if it is not a fact that you have the best orchard in that whole country?

A. I don't know that I have.

Q. I mean best from the standpoint of being in a good condition and protected by the mountains, and all those things, by Nature?

A. Well, I don't know whether protection has anything to do with it; I think I have cultivated it more than others do.

Q. Your orchard fronts south, does it not?

A. Yes, sir.

1560 Q. Arnold's orchard and the Northcutt orchard from north?

A. North and west, I believe.

Q. When was it that you made this inspection of the Arnold and the Northcutt orchards that you have testified about?

A. It was about the time or soon after the date that those photographs were taken.

Q. I want to know as nearly as you can, the month, or about what part of the month?

A. Well, it must have been four weeks ago about this time, about this time last month, as well as I remember; I don't know.

Q. About four weeks ago?

A. Yes, and may be longer, and may be not quite so long.

Q. Well, now Mr. Clayton, if you should see the smoke down there in the Arnold orchard, almost like the leaves were afire from appearances, boiling up through those trees and settling around there in the coves, and there wasn't any woods afire and you could smell the sulphuric acid, and you could see it and it settled there and stayed there a day and probably a little over a day, and then in a day or two after that that the leaves of that orchard should cri*pm* up on the edges and nearly all the apples fall at once, or in a few days, would you say that it was Frog-eye caused that or smoke, from your knowledge, now, of fruit?

A. Well, I have seen the smoke over on our side.

Q. Please answer the question first, Mr. Clayton?

A. I don't know what I would say until I saw it; I would have to see it to determine.

Q. If you were to see such a condition as I have just described, to what would you attribute the effects?

A. Well, I might attribute it to the smoke.

Q. Mr. Clayton, the brown leaves you saw on the forest that you talked about awhile ago, you don't know what caused them, do you?

1561 A. I thought we were getting towards to latter part of the season, and some trees shed their foliage and some turn brown earlier than others.

Q. The time then you have been talking about i*f* after the leaves commence to turn brown in the Fall?

A. Yes, they were slightly turning then.

Q. Don't you know from you- experience that the leaves on the top of a tree show the effects of frost or Fall shade and come down, coming down to the ground from the top?

A. No, I don't know that.

Q. Isn't that a fact?

A I don't know it.

Q. Did you never observe it in your experience?

A. I don't know that I ever noticed which part of a tree begins to shed the foliage first, the top or the lower leaves; I never took any notice to that.

Q. How old are you?

A. Fifty odd.

Q. You have been in the forest country all of your life?

A. A great deal, yes sir.

Q. And you have never observed the effects of shedding of leaves in the Fall?

A. I never paid any attention.

Q. How they commence?

A. No sir, I never noticed that, that I know of.

Q. The time these pictures of your orchard were made, that you have just testified to, they were made by Mr. Sherman Reese, who is the employee of the Ducktown Copper Company?

A. Yes sir.

Q. He was with you?

A. Yes sir.

Q. And the gentleman who is here assisting in arranging
1562 the photographs in this case?

A. Yes sir.

Redirect examination by Gen. **Fowler**:

Q. Mr. Clayton, in what direction are Northcutt's and Arnold's orchards from yours, probably?

A. The Arnold orchard I think is half a mile north of due west, and the Northcutt orchard is about west.

Q. Are you in plain view of Turniptown Mountain at your home?

A. No sir.

Q. When you go to Ellijay are you in view of it?

A. I don't know as I know exactly where the Turniptown Mountain is.

Q. Do you know the location of the Flathead Mountain?

A. No sir.

Q. Or of Bush Head Mountain?

A. No sir, I never go out in those Mountains.

Q. You don't know those things?

A. No sir.

Q. You know Cartecay Valley?

A. Yes sir.

Q. And Ellijay Valley?

A. Yes sir.

Q. Have you seen any smoke in there this year?

A Smoke or smoke damage?

Q. How ofter have you seen any smoke in Cartwcay Valley this year?

A. Why I have seen it—I saw it one time, that I remember, I saw smoke down there settle right on the south side of the mountain, right back of my orchard. The smoke settles when it comes over that way. It always comes there.

Q. You saw it once?

A. Yes, I saw it once.

Q. Did you see any damage from it?

1563 A. No, sir.

Recross-examination by Gen. **Drake**:

Q. Did you smell that smoke when it was down there?

A. No; some of them can say they smelt it, but I never got able to smell it.

And further deponent saith not.

J. W. CLAYTON,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 6th, 1914.

[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 280.

Next witness Grant Orten, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by Mr. Miller:

Q. Mr. Orten, where do you live, in what part of North Georgia?
A. I live in the Northern part of Georgia, I live in Morganton.
Q. In Morganton?
A. Yes sir; I live a mile and a quarter beyond Morganton.
Q. In what county?
A. In Fannin County.
Q. How long have you lived there?
A. I have lived there, I have been there a year last February.
Q. What business are you engaged in?
A. I am trying to farm there.

1564 Q. State whether or not the smoke or fumes from the Ducktown Company section have done any damage in your section during this year.
A. If they have I have never noticed it.
Q. What kind of crops have those people grown down there, as to whether they are good or bad?
A. The crops are the best I have ever seen on the Creek.
Q. The best you have seen?
A. Yes sir, the best I have seen.
Q. On what creek?
A. On Star Creek.

Gen. Drake: We except to that as not being in rebuttal of any thing the State introduced.

Q. Are those the best you have ever seen there; how good have you seen them; how much do the people grow of corn to the acre?
A. The most I have ever seen to the Acre, I helped to measure it last year was G. C. Byington's crop, 136 bushels and 52 pounds, is the most, I have ever seen on the creek. Crops averaged better this year at other places than they did there, but he fertilized heavier this year than anybody else has.
Q. Do you say the crops on the whole are better than you have ever seen them?
A. Yes sir.
Q. Does that refer to all kinds of crops, corn and——
A. Well, crops are better except the Byington crop last year; he is not on the Creek.
Q. No. I understand.
A. Well, all crops; yes sir, all kinds of crops.

Gen. Drake: I except to all of that evidence about the acre of corn, because that was proven about twenty-five times in the original taking of this evidence, and same is not in rebuttal.

Q. Now, how large a scope of country are you acquainted with there, Mr. Orten, through the Morganton and Star Creek
1565 section; how many miles around you in every direction are you acquainted with, would you say?

A. Well, I have been pretty close there; I went in on the old Byington place, and I have been there pretty close all the while. I have ranged cattle in there for some two or three miles from my place.

Q. Throught what timber?

A. Through the timber on Star Creek, back in betwixt Star Creek and Wilscot Creek.

Q. What is the nearest mountain around there?

A. The Richard Mountain is counted to be the nearest mountain.

Q. You are acquainted, then, up and down Star Creek?

A. Well, not clear down; I haven't been clear down the Creek this season; I have been on the road betwixt there and Blue Ridge.

Q. And how are your neighbors' crops and woodlands and fields this year?

A. They seem to be al- right: there has not been any damage that I have seen.

Gen. Drake: We except to all this evidence because not in rebuttal of anything proven by the State of Georgia.

Mr. Miller: If the State of Georgia don't claim there was any damage done at Morganton or on Star Creek, I am ready to turn the witness over to you.

Cross-examination by Gen. Drake:

Q. You are a land-owner down there, Mr. Orten?

A. Yes sir.

Q. You live behind a great big hill or mountain from Ducktown don't you; you live over on the east side of that mountain that runs across there at Star Creek?

A. No sir, there is no mountain there.

Q. There is a big hill.

1566 A. None to amount to anything, no sir; it is right upstream all the way. I live on the Creek that runs up from the river that runs right direct from Ducktown. I live on the creek that runs into the river that runs direct up from Ducktown.

Q. Which way do you live from there?

A. From Ducktown?

Q. Yes.

A. Why, I live a southeast direction.

Q. Which way do you live from Blue Ridge?

A. From Blue Ridge, it is—Let's see. A little over seven miles.

Q. Don't you know running from that river way down there north of Blue Ridge, clear on down south of Blue Ridge, just east of Blue Ridge, there is a great big hill or mountain that intervenes between there and Morganton and that section?

A. No sir.

Q. And going up from Blue Ridge, don't you know—or, going up from the railroad anywhere north of Blue Ridge, going east, that you have to climb a big hill to get into that section?

A. There is nothing I consider a big hill on the route there.

Q. Would you call a five or six hundred feet high hill, a big hill?

A. Yes sir.

Q. Don't you know, in climbing out of Blue Ridge, going east, that you have to climb a hill that is five or six hundred feet high, when you start out of there?

A. No sir.

Q. Don't you know that Blue Ridge is right at the top of the Gap of the Mountains?

A. At the top of that Mountain?

1567 Q. Don't you know that Blue Ridge is right in the Gap of those mountains, and right at the top of the gap where it breaks off both ways?

A. I understand, yes sir.

Q. Are those not the facts?

A. Yes sir; Blue Ridge seems to be right at the top of the mountain.

Q. Isn't it right in the gap of the mountains?

A. I understand; yes sir, the town.

Q. Is it not?

A. The town; yes sir.

Q. If it is in the gap of the mountains, is there not a mountain on each side of it?

A. Yes sir.

Q. Please explain how you would go out of that gap east without going up a hill?

A. When you go in the mountains, you have to go down to get to a stream; you are bound to go down to get to some stream is the way I look at it. In the top of the mountain or the gap of the mountain, you are bound to go down to get to the stream. I am on the stream.

Q. Isn't that very mountain that you were speaking about between you and Ducktown, Tennessee?

A. No sir, it is not between me and Ducktown. It is back on the far side of the river from Blue Ridge. The gap of the mountain is on the far side from me. I am on the east side of the river, and Blue Ridge is on the west side. There is the difference.

Q. You have seen a lot of smoke over in there, have you not?

A. I have seen some smoke.

Q. Have you not smelt some smoke over there?

A. No sir, I have not smelt any since I have been on Star Creek.

1568 Q. How long have you been there?

A. I have made two crops there. I moved there last February was a year ago.

Q. Where did you live before you went over there?

A. I lived on the Toccoa River.

Q. Which way from this place?

Q. It was a south direction, about three miles from where I now live.

Q. Were you raised in there?

A. Yes sir, I was raised on Wilscot River. I lived there when I was first married.

Q. You had a bad drouth up there this year, did you not?

A. Yes sir, it was reasonable dry.

Q. Last year you had the best crops you ever had in the world?

A. No sir, we had better crops this year than we had last year.

Q. And yet last year was the year that that fellow raised 136 bushels and 52 pounds of corn to an acre?

A. Yes sir.

Q. And that was a bad crop year, to boot?

A. It seemed to be, from appearances. It seemed to be a worse crop year than this year.

Q. Then a drouth seems to be good for crops in that country?

A. No sir. I believe if Byington had had it in there this year, he would have made more corn, because crops are better, but Byington claims he got over there from the smoke or he would have done worse, and he was going to move nearer the next time; that is what he claimed to me.

Q. And you conclude that smoke is good for crops?

A. No sir; I think he was joking about that.

Q. You have never seen any smoke injury at all up in there, have you?

A. Not since away back, I will say it has been some seven
1569 or eight years; I don't remember just exactly the time.

Q. It has been seven or eight years since you saw any smoke injury?

A. Since I noticed any damage, or had any damage done myself. I thought probably the smoke did some damage on a watermelon patch, and went in another one——

Q. This year you have seen some smoke in there?

A. There has never been a time since I have been a child but what I have seen smoke in there during the year, some time during the year, some smoke.

Q. And this year you have seen it, too?

A. Yes sir, I have seen it this year, but I can't tell that it is any worse, or may be hardly as bad.

Q. You have seen it there?

A. It has been more of a dry season, and, generally of a dry season, when we don't have much fog and stuff like that, the smoke would be generally higher, and it has been a little bit—it seems to have been a little bit off, more so than common.

Q. It was better in your neighborhood this year that usual?

A. It has seemed to be.

Q. On account of the dry weather you say?

A. That was my opinion about it, on account of the dry weather?

Gen. Fowler: Where does this smoke come from?

The Witness: I can't tell.

Gen. Drake: Get in the record that it rises in dry weather and has generally been high, usually, too; that he has observed that

Redirect examination by Gen. FOWLER:

Q. How old did you say you were?
A. I am forty-six, I reckon, I was born September 25, 1868.
Q. And you have seen more or less smoke every year since
1570 you have been born?
A. Yes, sir.
Q. You see smoke coming out of the brick chimney of that residence across the street there, when you look at it?
A. Yes sir.

Recross-examination by Gen. DRAKE:

Q. Do — mean to compare the smoke that you see here with the smoke you saw boiling over in your country, and that you saw all over your water-melons at that time?
A. Well, I can't tell you about that. All smoke seems to b- alike. I have never been able to detect the difference in smoke.
Q. You will not qualify then as an expert on smoke, will you?
A. No sir, I couldn't at all; I am no expert on smoke that way, not enough to tell the difference.

Redirect examination by Gen. FOWLER:

Q. Do you know when crops are affected?
A. Yes sir.

And further deponent saith not.

GRANT ORTEN,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 6th, 1914.
[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 260.

Next witness, T. E. GARREN, called for defendants, in rebuttal, being duly sworn, deposed as follows:

Examined by Mr. MILLER:

1571 Q. Where do you live?
A. I live in the Morganton district, in Fannin County.
Q. In Georgia?
A. Yes sir.
Q. How long have you lived in the Morganton section?
A. I moved up there just about the first of the year, this year.
Q. What business are you engaged in?
A. Farming.
Q. I want to ask you with reference to what is know- as the Dora, the mineral bluff, the Start Creek, Morganton and Mineral Bluff sections of Georgia, in so far as you are acquainted with

them. Tell me which of those localities or whether you are acquain-ed with all of them, and if not, which of them?

A. I am acquainted with all of them.

Q. I want you to tell us now about the condition of the crops, the orchards, the fields, and the forests out there in those various sections of Georgia this year?

A. Well sir, as far as I know, the corn crops are all good; pea crops and bean crops are good, too.

Q. If there had been any substantial damage done down there by copper smoke this year, affecting crops or fields or forests, would you have know- about it in passing through the country?

A. Not that I know of. I have not seen a thing that I thought was damaged by smoke.

Q. If there had been any damage of consequence done there, would you have seen it?

A. I think I would, yes sir; I think I would.

Gen. DRAKE: We except to the question, because the question suggests the answer.

Q. What opportunities have you had for seeing and knowing about it?

A. Well, sir, I have been right there farming in the smoke
1572 for eight years.

Q. And have you or not seen in your neighbors' lands and their fields and through their woodlands?

A. Yes sir.

Q. How many miles away from your home have you been?

A. I have been out eight or nine miles up the river.

Q. What river?

A. The Ocoee; The Toccoa, they call it up there; it is called the Ocoee down here; and then I was *was* from Start Creek where I lived across Hampton and over into the heavy cut cane, over there by Dora Post Office.

Q. Now, what is that Hamp Top or Hamptown?

A. Hampton.

Q. What is that, a village?

A. It is a creek, a valley.

Q. What mountains through that section are you acquainted with?

A. Well, it is that bound-ry, I can't tell you what the names of the mountains are, nothing more than just Hampton Creek has a valley and Cut Cane and Star Creek—just a valley, you know; those are all named that I know of it ever going by.

Q. You then, as I understand are acquainted for several miles around, with the conditions as they have existed this last crop season?

A. Yes sir, I have been pretty well all about over the country, in and about the hills for from eight to ten miles and back as far as Ducktown.

Q. And if there had been any damage done through there to yours and your neighbors' crops, fields and orchards, you have not been able to discover it?

Gen. DRAKE: We except to the question as leading, suggestive, and calling for the answer desired.

1573 Q. State what, if you have seen any damage through there this season at all?

A. No, sir, I have not, by smoke; I want to speak about the fruit business; there are a great many of the fruit trees through that section there where the fruit is no account. It is rotton, with rotton specks and all that, but I don't know what the cause of it is; I would not say as to that; the trees look like they are in bad shape and have been badly cared for. I don't know whether it is caused by the smoke, or whether it is for want of attention and cultivation or what was the cause of the fruit trees being that way.

Q. When a fruit tree is badly cared for, as you express it, does it have rotton fruit on it, when you do not take care of it?

A. That is my judgment, yes sir.

Q. That has been your observation of it?

A. Yes sir.

Mr. HILL: I except to that as being a conclusion without any facts stated upon which to base it and I except to all of this witness's evidence *and* not being in rebuttal.

Cross-examination by Gen. DRAKE:

Q. You have seen smoke over there, I believe you say?

A. Yes sir, I have seen smoke over there lots of times; I can't tell you the number of times where I live now is on a rise up on a hill, and I look down, like that, into the valley, and I can step out in the big road, at my house and see for a mile and a half down to the river bridge; I have seen smoke all through there lots of times.

Q. How many times have you seen it this year?

A. I can't tell you; I wouldn't try to say that, for I don't know.

Q. You have seen it many times?

1574 A. Very often; when the air is out of the north, it comes right in there.

Q. It comes in there whenever the wind is from the north; north is from Ducktown, and when the wind is from Ducktown you have seen the smoke there?

A. Yes sir, Ducktown is north from where I live.

And further deponent saith not.

T. E. GARREN,
[SEAL.] By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 6th, 1914.
[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 260.

Next witness, J. E. Wilson, for defendants, in rebuttal, being duly sworn, deposed as follows:

Examined by Mr. Miller:

Q. Mr. Wilson, how old are you?
A. I am fifty-two years old.
Q. Are you a farmer?
A. Why, I live on a farm; my folks work the farm.
Q. How many acres are in the farm?
A. Well, I guess I work forty acres in corn, rye, and such like as that.
Q. How many acres do you own down there?
A. Well, I cannot say that I own that in myself, but I worked it; it is in my mother's name; my father is dead.
Q How many acres are in the whole thing; that is what I am trying to get at.
A. That I have not charge of?
1575 Q. Yes sir.
A. Well, about a hundred and forty acres. Only about forty or fifty acres of that is in cultivation.
Q. Yes; I am talking about the whole acreage; what is grown on the balance of the farm that you do not cultivate?
A. Timber.
Q. How far do you live from Morganton, in Georgia?
A. About nine miles. This is just guess work with me.
Q. How far do you live from Mineral Bluff?
A. Four miles.
Q. What direction from Mineral Bluff, do you live?
A. From Mineral Bluff?
Q. Yes.
A. Well, I reckon you might say it is a north course, a north west course.
Q. How far do you live from what is called Dora or the Dora section?
A. That is on Cut Cane, is it not?
Q. I don't know.
A. Well, I don't know.
Q. How far do you live from Start Creek or Star Creek?
A. From Star Creek?
Q. Yes.
A. Well, that is in above Morganton; that is some nine or ten miles.
Q. How far do you live from Copperhill?
A. Copper Hill? About six miles.
Q. What direction do you live from Copperhill?
A. An east direction.
Q. Do you live on any water course, or near any?
A. I live on Hot House.
Q. On Hot House Creek?

A. On Hot House Creek.

1576 Q. What stream does Hot House Creek empty into?

A. Ocoee River. This river here, Ocoee, I reckon, or Toccoa.

Q. Do you live near any Mountains?

A. I reckon not.

Q. Tell me whether or not you are acquainted with the crops and timber. the fields, and the condition of the gardens in the section where you live, where you and your neighbors have such, during this past season?

A. I have got a good crop where I live; I have got about sixteen acres in corn, fine corn; I have a good garden.

Q. And how about your neighbors' crops and gardens?

A. Well, I don't know anyt-ing about theirs, only just what I have seen from outside appearances.

Q. That is what I am asking you about. How do they look?

A. They look good from outside appearances; I have not been in their crops though.

Q. How about your woodlands?

A. I didn't see anything wrong about my woodlands. My woodland is al- right, sir.

Q. Has any damage been done down through your section to your crops, or woodlands, or your neighbors', this year, as far as you know, by smoke?

A. No sir, there has not.

Gen. Drake: We except to all this witness- evidence because it is not in rebuttal.

Cross-examination by Gen. Drake:

Q. You live on Hot House Creek?

A. Yes sir.

Q. On what part of Hot House?

A. Well, I reckon you would call it the upper part of Hot House; I reckon you would call that the upper part of Hot House where I live.

1577 Q. Have you seen much smoke over in that Hot House country?

A. No sir, I have not seen any smoke.

Q. You have not seen any at all there, have you?

A. No sir.

Q. You work in Ducktown, do you not?

A. I work for the Tennessee Copper Company.

Q. That is in Copperhill, or over in the Ducktown Country, is it not? That is at Copperhill, is it not, Tennessee? You know where that is, do you not?

A. I know where that is, al- right.

Q. Then why don't you answer the question?

A. (No answer.)

Q. Why don't you answer the question, Mr. Wilson, if you know where it is?

A. (No answer.)

Q. Again I ask you, if you work for the Tennessee Copper Company, why is it that you don't answer the question that that is at Copperhill, Tennessee, if that is the fact?

A. (No answer.)

Q. Do you decline to answer?

A. (No answer.)

Mr. Hyatt: Go on and answer.

Gen Drake: I except to the lawyers for the Copper Company suggesting to the witness that he should answer the question.

A. How was that? How was that?

Q. Why is it that you decline to answer the question that the Tennessee Copper Company is at Copper Hill, if you work for the Tennessee Copper Company?

A. I worked for the Tennessee Copper Company.

Q. How long have you been working for them?

A. Oh, I don't know. I guess something like fifteen years.

Q. You don't know where they are located, do you?

1577½ A. I know where I am working at for them.

Q. Where are you working for them?

A. Where? Over here at Copperhill.

Q. What part of Copperhill, Mr. Wilson? I want to know where you are working there in Copperhill, what part of Copperhill do you work at for the Tennessee Copper Company?

A. I work there at the boiler shop, the plate shop, in one sense of the word.

Q. What kind of work did you do for the Tennessee Copper Company?

A. I told you I worked there in the plate shop.

Q. In the plate shop?

A. Yes sir.

Q. What kind of work is that? I don't know what a plate shop is.

A. That is in the boiler shop, just all kinds of work that comes up in the way of boiler maker's work.

Q. Your work keeps you over there nearly all the time, does it not?

A. Huh?

Q. Don't your work keep you at Copperhill all the time?

A. No sir, it does not.

Q. Don't it keep you there nearly all the time?

A. It keeps me there a right smart of the time.

Q. How much of the time? How much of the time do you stay at Copperhill? Please tell me if you know?

A. (No answer.)

Q. Do you stay there one day in the month?

A. No, I stay there more than that.

Q. Well, now, how much more; that is what I am trying to get at?

A. (No answer.)

Q. How much more do you stay at Copperhill than one day on the month?

1578 A. Oh, I guess I stay there, have stayed there for the last two or three months, half my time, that is working there half my time.

Q. You stay there all the time you work there, do you not?

A. I stay there half the time.

Q. What days of the week, do you stay half of the time, do you go and work there, and where are you the other half of the time?

A. My work is dull, the work is dull now, and I am not getting full time. That is what I mean by that.

Q. That is what I am trying to get at. Where are you the other half of the time, and have you been for the last month?

A. At home.

Q. Before this, and for the last eight years, you have been working for the Tennessee Copper Company for the last eight years; you can answer that, can you not?

A. I have been working for them for the last eight years.

Q. Yes, have you not continually; I mean by that, only when you have been off for a few days like you say you have been here lately.

A. (No answer.)

Q. Before this little dull time which occur-ed here about two months ago, I will ask you if you did not work there almost every day in the week?

A. (No answer.)

Q. You can answer that question, can you not? please answer it and let's get along.

A. (No answer.)

Q. Don't you know that your work kept you at Ducktown or Copperhill, that it keeps you there practically all the time unless it would be some time at night, until this little dull time a few weeks or months ago?

1579 A. (No answer.)

Q. Go on and answer the question, please.

A. (No answer.)

Q. Do you decline to answer the question?

A. (No answer.)

Q. What is the matter with you Mr. Wilson, that you can't answer these questions?

A. How is that?

Q. What is the matter with you, that you will not answer these questions?

A. (No answer.)

Q. How much have you ever worked for the Ducktown Copper Company?

A. The D. S. C. & I. Company?

Q. Yes.

A. I never worked much for them, I don't know them.

Q. You worked for them some?

A. Some, but I can't tell you—not much.

Q. All the work you have done has been for these copper companies the last fifteen years, has it not?

A. I have been working for them about fifteen years, yes sir.

Q. There has not been any smoke damage at all in your neighborhood, has there?

A. If there has, I cannot tell it.

Q. You have not seen any smoke over in your country al all?

A. No sir.

Q. You never have smelt any, never have smelt any over there?

A. I have never seen any over there.

Q. Have you ever smelt any over there?

A. (No answer.)

1580 Q. Why do you decline to answer the question, Mr. Wilson?

A. I say, if there has been any there, I can't smell good; I have asthma troubles.

Q. And that is the reason you think you have not smelt it?

A. (No answer.)

Q. All the fifteen years that you have been working and living over there you have not seen or smelt any smoke?

A. No sir, I ain't.

And further deponent saith not.

J. E. WILSON,
By R. C. S. HUTCHINSON,
Commissioner.

Sworn to before me this November 6th, 1914.
[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 260.

Next witness ROBERT HAMPTON, for defendant, in rebuttal, having been duly sworn deposed as follows:

Examined by Mr. MILLER:

Q. You are engaged in the mercantile business, I think?

A. Yes sir.

Q. You live where?

A. I live at Mineral Bluff, Georgia.

Q. You have given your deposition in this case before?

A. Yes sir, on the 19th of June, 1914, I think was the date.

Q. It has been claimed, as I understand, that there was some damage done in what is known as the Dora section, the Mineral Bluff section, the Morgantown section, and the Star or Start Creek section of country in North Georgia, and I want to know which of these sections you are acquainted with. 1581 & 1582

A. I am acquainted with the Morgantown section, and also with the Dora section, and also with the Mineral Bluff section, but not so much so as I am with the Mineral Bluff section.

Q. What occasion have you to see and know about the crops, fields, and gardens in those sections that you are acquainted with?

A. I am in the mercantile business and I am out over the country quite a good deal in collecting, and also in North Carolina over the Country. The condition of the Crops and so on, I observe as something which has to do with my own business.

Q. Have you or not bought any crops or agricultural products this last season, the season of 1914, that were grown this year in those sections?

A. I certainly have.

Q. What commodities?

General **Drake**: I except to that as being original evidence and not in rebuttal.

Q. What crops?

A. Pease, mostly.

Q. What character of crops have been grown through that section this year, the year of 1914, or through those sections that you have asked about.

A. Wheat, rye, pease, corn cabbage, and potatoes.

Q. And what has been the condition of the crops, what character of crops, I mean, as to healthfulness?

A. We have got a phenomenal crop of pease, corn and beans, and a good crop of apples. The potato crop was cut short, owing to the dry weather in May and June.

Q. If there had been any substantial damage done down through that section by smelting operations from the Ducktown section, do you think you would have necessarily *have* known about it?

A. I think so.

Mr. **Hill**: We except to the question and answer, as calling for and being a conclusion.

1583 Q. Has there been any damage?

A. I have not seen any.

General **Drake**: I except to all of this witness' evidence as not being in rebuttal of anything introduced by the State, as being cumulative and for that reason incompetent.

Cross-examination.

By General **Drake**:

Q. You were on the witness stand in Chattanooga, were you not?

A. Yes sir, I was.

Q. And on the stand at that time, you testified all about the conditions a*b*ound your neighborhood, did you not?

A. Up to the 19th of June, 1914.

Q. Up to that time, the last of June, 1914?

A. Yes sir, I did.

Q. Did you testify that there had been a lot of smoke in there?

A. No, sir, I don't think I did.

Q. You don't think you did?

A. No sir, I don't think I did.

Q. There had been smoke in there, had there not?

A. I can't say there was. There had been smoke, of course, but I can't say what kind of smoke it was.

Q. You have seen plenty of it in there, have you not?

A. No sir, I don't think I have seen plenty of it in there.

Q. Did you ever smell any?

A. Yes, I have smelt smoke in there.

Q. Sulphur smoke have you not?

A. Well, I think so, yes sir.

Q. This year?

A. I can't say I did this year.

Q. Last year?

A. Well, I have smelt smoke in there I don't remember
1584 just when it was.

Q. Now, don't you know, to refresh your recollection, that in Chattanooga you swore that you smelt it there this year?

A. I think I said I smelt smoke in there some time in February.

Q. Of this year?

A. Yes, some time in this year. I think I said that, yes. Very commonly, you smell smoke in the winter time.

Q. You can't smell that kind of smoke in the summer time?

A. Well, the air is not from the west so much.

Q. It depends then, on where the air is from; if it is from the northwest, it would blow it down towards you?

A. No sir, direct west.

Q. You are directly east of it, then?

A. Something like directly east.

Q. And if there is a direct west wind, you get it; otherwise you do not get it?

A. No sir.

Q. Did you not swear in Chattanooga that you saw some *some* in there in the early part of the spring this year?

A. I don't think I did.

Q. I will ask you if I did not ask you this question:

"Q. Have you not seen the smoke in that country in Fannin County this year?"

A. Yes sir, I swore that.

Q. And didn't you answer this way: "A. I have seen smoke, or something that looked like smoke, and I distinctly smelt the fumes in February, but I do not remember whether I smelt it since that time or not, but I did some time back in the early part of the spring"?

A. I think so, yes sir. That is what I replied a little while ago.

1585 Q. In the early part of the spring you did smell smoke?

A. Is February in the Spring?

Q. Did you not say that you smelt some in February, and then later on in your answer did you not say you smelt it in the early part of the spring, also?

A. I don't remember that, I remember saying that I smelt it in February.

Q. Did you swear that this season, in your examination taken in Chattanooga?

A. I suppose I did, yes sir.

Q. Then did you smell it in the early spring?

A. Well, take it that way.

Redirect examination.

By Mr. Miller:

Q. February is not far from the early spring, in your section, is it?

A. No sir, it is the last winter month.

General Drake: I except to that question, because the calendar is the best evidence of when February comes. The court will take judicial cognizance of the fact that it is a winter month, and the coldest one we have.

Q. Now, when you smelt smoke, was there any sign, when you got a whiff of smoke, that there is an amount sufficient to do any damage?

A. I have smelt smoke when I saw no damage.

Q. You can light a sulphur match and smell it across the street sometimes, can you not?

A. Yes sir.

Q. And if you approach a village from out in the open country in the woodlands, you can smell the coal smoke two or three miles from the village, can you not?

A. Yes sir.

Mr. Hill: We except to the two foregoing questions, as being not only leading and suggestive, but putting the answer in
1586 the mouth of the witness.

And further deponent saith not.

ROBERT HAMPTON,
By R. C. S. HUTCHINSON,
Commissioner.

[SEAL.]

Sworn to before me this November 6th, 1914.

Mileage, 240.

Next witness, F. T. Largent, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by Mr. Miller:

Q. How old are you?

A. I am going on thirty-five years old.

Q. Where do you live; if you live in North Georgia, tell us in what locality.

A. Northeast of Fannin County, Georgia.

Q. Are you acquainted over in what is known as the Dora, the

Mineral Bluff, Start Creek, Morgantown, or any of those sections, any or all of them?

A. A little bit; the fire-clay district, I live in it.

Q. With which of those sections are you acquainted?

A. The fire clay district mostly.

Q. How about Dora, Mineral Bluff, Morgantown, and the Start Creek sections?

A. I am not acquainted in them.

Q. Are you acquainted in any of these sections?

A. I have been through there a few times.

Q. Have you been through there this year?

A. No, I don't think I have been through there this year.

1587 Q. Have you been out with any of the witnesses from down in that section that you claim that were damaged by smoke this year, looking for smoke signs?

A. Yes, I have been out with one, on my place.

Q. What was his name?

A. Tom Henson.

Q. He was taking you out to find smoke damage?

A. The Tennessee Copper Company put some money in the bank, $16,500, I think, for damages, and he had put in a claim for damage, and I told him, "Henson, I don't think you are really damaged".

General DRAKE: We except to all that evidence as being irrelevant, hearsay, immaterial and not in rebuttal.

Q. You went out to hunt for damage, to see if you could support his claim against the Tennessee Copper Company?

A. Yes, we were out looking about for them.

Q. Did you find any?

A. We found some corn that was in roasting ears, in silk you know, and he showed me where he was really damaged four or five different ears and I told him, I said "Henson, hold still and we will examine this corn and see what is wrong, whether the smoke killed it or something else has damaged it, and I tore in it, I pulled open three ears, I believe, and there was a worm, a corn worm, had cut the silk off around plumb to the cob, corn and all. And that was what he claimed the smoke had damaged.

General DRAKE: We except to all that as being incompetent irrelevant, and not in rebuttal of any thing introduced by the State, and further, as hearsay.

Q. What is your post office?

A. Sweet Gum, Georgia.

Q. How far do you live from Mineral Bluff?

A. Something over eight miles.

Q. How far from Morgantown?

1588 A. About eight or nine miles, something along there.

Q. How far do you live from Star or Start Creek?

A. I don't really know just how far it is.

Q. Do you know where Dora is?

A. Yes sir.
Q. How far do you live from there?
A. Something like three miles, I guess.
Q. In what direction do you live from Dora?
A. North, I suppose.
Q. You live nearer to Copperhill than Dora, do you?
A. Yes sir.
Q. You live between there and Copperhill?
A. Yes.
Q. Do you live nearer to Copperhill and Mineral Bluff, or Morgantown?
A. No, they are nearer than I am, a little bit.

General Drake: I except to all the evidence of this witness as irrelevant and incompetent, for the reason that it is not in rebuttal and relates to no evidence that was taken on behalf of the State.

Cross-examination.

By General Drake:

Q. You live away back up next to North Carolina, do you not, Mr. Largent?
A. Yes; in the northeast corner of Fannin County.
Q. The witness that you spoke about going out with, is not a witness that the State used in this case, is he?
A. I don't know whether they used him or not; I don't reckon they did; if they did, I don't know it.
Q. You say "Sweet Gum": is that a Creek away back up there?
A. It is known as Sweet Gum station on the Murphy Branch.
Q. Is that not the last station in Georgia next to North Carolina, on that road?
1589 A. Yes.

Redirect examination.

By Mr. Miller:

Q. You say when you showed that fellow it was worms that had damaged his corn, the State of Georgia did not use him in this case?
A. I don't know whether it did or not.

Mr. Hill: We except to that, as being improper, for the reason there was no evidence calling or authorizing such conclusion on the part of counsel embraced in his question; and further, because irrelevant, immaterial, and not in rebuttal, and the State of Georgia never thought of using witnesses from the edge of North Carolina, and did not introduce any evidence at all in the neighborhood of Sweet Gum, as the record shows in this case.

A. (Cont'd.) I have been up there four years farming, and when I went there my farm, part of the land, produced something like ten or fifteen bushels to the acre, and I improved my farm, and this year I expect I have averaged right at 65 bushels to the acre, and if I have been hurt any way by smoke, I do not know it.

General DRAKE: We except to the answer, for the reason that it is not in rebuttal. We admit they raise good crops in North Carolina, in the edge of North Carolina, and even in some parts of Tennessee.
Q. How far do you live from Copperhill?
A. I expect it is somewheres in twelve to fifteen miles.

General DRAKE: We except to the last statement, as being voluntary upon the part of the witness, and not in rebuttal.

And further deponent saith not.

F. T. LARGENT,
By R. S. C. HUTCHINSON,
Commissioner.

1590 Sworn to before me this November 6th, 1914.
[SEAL] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 260.

Next witness, E. L. STANLEY, for defendant, in rebuttal, having been duly sworn deposed as follows:

Examined by Mr. MILLER:

Q. Mr. Stanley, how old are you?
A. I am 33 years old.
Q. You live in Georgia?
A. Yes sir.
Q. In what county?
A. Fannin County.
Q. At what Post Office?
A. Morganton.
Q. How far do you live from Morganton?
A. About one mile.
Q. What direction from Morganton do you live?
A. A west course.
Q. Are you acquainted with the Morganton sections generally, that is, around in the neighborhood?
A. Pretty well, yes sir.
Q. A few miles around in all directions?
A. Yes sir.
Q. Are there a good many farmers living down through there?
A. Yes sir, several.
Q. Do you endeavor to raise gardens—do your neighbors raise gardens and crops on their farms?
A. Yes sir.
Q. Do they have woodlands?
1591 A. Yes sir.
Q. Are you acquainted in either the Dora section or the Start Creek section, or the Mineral Bluff section?
A. Not the Mineral Bluff section, I am not.
Q. Are you acquainted in the Dora and Start Creek sections?
A. Star Creek, yes sir.

Q. Are you pretty well acquainted in that section of the country?
A. Yes sir.

Q. I will get you to state whether there has been any damage done the crops and gardens and fields and orchards in those sections now where you live and where you are acquainted, either those of your neighbors or yours, by smoke, this last year?

A. I have not seen any that I could say that Ducktown smoke did it; I have not seen any.

Q. What kind of crops have you and your neighbors grown there this year?

A. Good crops.
Q. Have you raised corn?
A. Yes sir.
Q. Potatoes?
A. Yes sir.
Q. Pease?
A. Yes sir.
Q. Beans?
A. Yes sir.
Q. Garden products?
A. Yes sir.
Q. Have the orchards grown fruit?

A. Yes sir. On the place where I live, it is potatoes mostly; no apples.

Q. How have your crops your own, compared with crops in other sections of the country that are quite a distance away from there?

1592 A. As far as I *ah*ve seen, do you mean in the district I live in and others?

Q. Yes.
A. Well, what I have seen are just about an average.

General Drake: We except to all this evidence, because it is not in rebuttal.

Cross-examination.

By General Drake:

Q. You say the crops are about an average this year?
A. Yes sir.

Q. Are there any phenomenal crops in that country—there are not any phenomenal crops in that country then this year?

A. They are better than they were last year; I have lived there five years, I reckon, at that place.

Q. What I asked you, is this: Isn't this a phenomenal crop year up there in the Morganton country; by that I mean the biggest crops, the finest crop, that you ever heard of in your neighborhood within the memory of man?

A. Well, I can't say that it was, on my own; I know my own is better than I ever made there, and the fellow that joined me.

Q. But the country generally is about an average?
A. Off from there.

Q. How much land do you own?
A. I don't own any land whatever; I rent.
Q. You don't own any land at all?
A. No sir, I don't own any land at all.
Q. How old are you?
A. I am about 33 years old.
Q. How often have you seen smoke in your country this year?
A. I can't tell you.
1593 Q. How often have you smelt it?
A. If I have smelt it, I do not know it.
Q. You have seen it there this year a good many times, have you not?
A. Oh, yes, I have seen it there, yes sir.
Q. It would settle down in the coves, would it not?
A. Yes, on the river.
Q. You live down close to the river, do you?
A. Yes sir, right at the mouth of Start Creek.
Q. And there is nothing but peach trees on the farm where you live?
A. Yes sir.
Q. How often does the smoke come in there that you have spoken of?
A. I couldn't say.

Redirect examination.

By Mr. Miller:

Q. It comes every time the leaves catch on fire or you burn brush, don't it?
A. Yes sir.

General Drake: We except to that as being leading, the question putting the answer in the mouth of the witness.

Recross-examination.

By General Drake:

Q. Don't you know that the Ducktown Copper Company's smoke that you have seen boil out of the top of those stacks over there comes over in your neighborhood, you have seen it, have you not, seen that kind of smoke in there when the woods were not on fire?
A. I can't say to that; it was smoke. It was all over the whole country everywhere.
Q. Have you not seen the smoke all over the country like you describe when there were no woods on fire?
1594 A. Yes sir, I have seen smoke there.
Q. And it was what your neighbors and everybody called "Ducktown" smoke.
A. Yes sir, that is what they all called it. I have heard them call it that, of course.

Redirect examination.

By Mr. **Miller**:

Q. As I understood, there was no damage from any of the smoke?
A. No sir, I saw none.

Recross-examination.

By General **Drake**:

Q. You will not swear there has been no damage done?
A. No sir, but I will swear I have not seen any done.

Redirect examination.

By Mr. **Miller**:

Q. I understand, if there were any of your crops damaged, that you would, put in a claim against the Tennessee Copper Company?
A. Yes sir.
Q. You didn't put in any claim?
A. No sir.

And further deponent saith not.

E. L. STANLEY,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 6th, 1914.
[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 230.

1595 The further taking of depositions was here adjourned until Saturday, November 7th, 1914, at nine o'clock A. M. at which time same resumed pursuant to adjournment.

Next witness, J. M. **Davis**, for defendant, in rebuttal, having been duly sworn, deposes as follows:

Examined by Mr. **Fowler**:

Q. Mr. Davis, where do you live?
A. I live four miles east of Blue Ridge, on the Toccoa River.
Q. How near do you live to Mr. John J. Turner?
A. Something like a mile or a mile and a quarter.
Q. How near do you live to R. H. Smith?
A. Well, it is a mile and a half or three-quarters to his place, something near. I have not measured the distance, but somewhere near that.
Q. Do you own the place on which you live.
A. I own the place on which Mr. Turner lives. I know where Mr. Smith lives, but I have never been on his place.
Q. Have you been on the Turner place any this year?

A. I have been by it. The road is like this; I have been by on the road here, and here is the line between him and Mr. Rodgers, or between the place he has and Mr. Rodgers, and I have been here on this side of the line, with just a small brance between.

Q. Do you own a place of your own?

A. A small lot, yes.

Q. Have you been cultivating crops this year?

A. Yes sir.

Q. What kind of crops have you been cultivating?

A. Corn, potatoes, and pease, principally. I had some garden stuff, made some stuff for the garden market.

Q. How many pease have you, how many acres have you had in pease this year?

1596 A. I had three acres in pease alone, and I had something like four acres in pease and corn.

Q. When did you sow your pease?

A. Along the first of June, I guess.

General DRAKE: I except to all this evidence because it is not in rebuttal.

Q. How long does it take pease to come up?

A. Well, that varies according to the moisture of the soil and the warmth of it.

Q. Were your pease up and growing by the first of July?

A. Yes sir.

Q. State whether or not your pease have been injured by smoke fumes this year?

A. No sir.

Q. Has any of your garden truck been injured this year?

A. I have not seen a particle of smoke signs on my place.

Q. Have any of your crops been injured in any way from smoke fumes?

A. No sir.

Q. Have your fields, or the forests of your neighborhood there and around where you live, and near Turner?

A. Well, I have not noticed much the forest, up around Turner there, but around in our neighborhood I have not seen a single leaf discolored by Ducktown smoke.

Q. During the present year?

A. During the present year.

Q. You have heard talk about the Ducktown smoke?

A. Quite a little.

Q. And has that or not caused you to give special attention to it?

A. Sure, I have given attention to it for that reason.

General DRAKE: I except to the question, because it is 1597 suggestive of the answer.

Q. Go ahead.

A. For this reason, there is an appropriation made you understand, by the Tennessee Copper Company, and I thought I might as well have my part of that as anybody.

Q. And you have seen none?
A. I see no signs.

General DRAKE: I except to all this evidence as immaterial, not in rebuttal, and as being original evidence.

Cross-examination.

By General DRAKE:

Q. Are there any mountains near you there, Mr. Davis, or what kind of a country is it that you live in?
A. It is a hilly country; there are no large mountains near my place.

And further deponent saith not.

J. M. DAVIS,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 7th, 1914.
[SEAL.]
R. S. C. HUTCHINSON,
Commissioner.

Mileage, 238.

Next witness, W. E. ROGERS, for defendant-, in rebuttal, having been duly sworn, deposed as follows:

Examined by General FOWLER:

Q. Where do you live Mr. Rogers?
A. I live up four miles above Blue Ridge, near Morganton, on the Toccoa River.
1598 Q. How near Mr. J. M. Davis do you live?
A. His land and mine join; I have an apple orchard there right up against his, joining his farm.
Q. How near to John J. Turner do you live?
A. The place he lives on is a farm, and my farm joins, with just a small branch between us.
Q. How near do you live to R. H. Smith?
A. I suppose that is Henry Smith; it is a mile to where he lives.
Q. Do you own a farm there?
A. I own about three hundred acres of land.
Q. What kind of crops do you raise?
A. I raise corn, pease, hay, grain, millet, and garden stuff, potatoes, and such as that. I garden a right smart.
Q. Do you raise garden truck to sell?
A. Yes sir.
Q. How large a peice of land did you have in potatoes?
A. I had about three acres in Irish potatoes; something like that; half an acre in tomatoes, four acres in melons an acre or so in early corn, and the rest in late corn.
Q. How near is you- garden patch to the garden of this man Turner?

A. It is about a quarter of a mile from my garden up to his. His garden is on the side of the public road, the main road from Blue Ridge to Morganton.

Q. In what direction are your lands from Turner's?

A. South; rather southeast.

Q. How many pease have you raised this year?

A. Well, I didn't raise any pease to sell. I sowed them to make hay out of for my cattle—my stock.

General **Drake**: I except to all that evidence, as not being in rebuttal of anything proved by the state.

1599 Q. When did you sow your pease?

A. I *sold* them along about the first part of June, about the last of May, I don't remember positively. It may have been the last days of May. It was either the last days of May, or right at the very first of June.

Q. Have you seen smoke in that section through there this year?

A. I have noticed some smoke in there. It looked smoky kind of hazy.

Q. Do you remember any special time when you noticed that?

A. No sir.

Q. State whether or not any of your crops, either garden products or field products have been injured in any way this year?

A. Not that I could tell. I watched very closely, there was so much talk about damage and so many putting in claims that I watched very closely to see if my stuff was damaged, and I never noticed any discoloration on them, on my garden stuff, field stuff or forest, either, though I watched with all the eyes I had.

Q. How close were your pease to this land that Turner was cultivating?

A. I guess it was about 200 yards.

Q. Was your field of pease adjoining the Turner land?

A. Yes sir, there was just a small branch between them.

Q. What did Turner have in; what was growing on the Turner land across this branch?

A. There was a meadow first, a little strip of meadow, and then came corn and pease.

Q. Did you notice anything wrong with Turner's crops?

A. I never was over his field during the whole season. All I know about his, is what I could see from the road, what was lying on the land next to the public road.

1600 Q. What did you have that was along the public road?

A. His garden was right by the side of the public road, and then a field of corn—well, no, his corn was not on the public road; that belonged to Mr. Wilson. He had a piece of land rented right on the road; he was not tending the entire farm.

Q. Turner's crops, his garden, was on the road?

—. ——.

A. Was there anything wrong with Turner's garden?

A. I did not notice anything wrong, just passing by; I never examined it.

Q. Was your attention attracted to it in any way?

A. No sir, it was not.

Q. Was there anything wrong with Mr. Wilson's corn?

A. It was the best corn on that square of ground next to the public road I have seen on it since I have been in the county.

Q. Have you noticed anything wrong with any of the crops, anybody's crops this year, as the result of smoke fumes?

A. No sir, not of smoke. I have in other respects, but not along there from smoke.

Q. State whether or not there was a pretty bad drouth in that section?

A. Yes sir, they had a bad drouth. There was an extremely dry spell in the fore part of the summer, and the people prepared—they did not plow their land properly, or sowed too early, and consequently a great many of them had short crops; they could not be otherwise; the weather was dry, and dried out the soil.

General Drake: I except to all this evidence as irrelevant, immaterial and not in rebuttal.

Q. Have you been on Smith's land?

A. No sir.

Q. State whether or not you were present when a number of photographs were taken some two months ago.

A. Yes sir, there were some photographs taken there; some
1601 gentlemen came on my place and I was hauling out melons,
the last load of melons out of my crops, those that would
be ripe over night.

Q. Do you remember how many were taken there?

A. I think probably there were one or two views taken right there at the melon patch, and probably one about my barn, of the corn and pease up the river.

Q. Who were the gentlemen that took them?

A. Mr. Reese was one, and I think the photographer was named Thompson, as well as I remember, I would not be positive.

Q. Would you recognize the points photographed, if the pictures were shown to you?

A. I think so.

Q. I show you photograph No. 126, taken by Mr. Thompson. State whether or not you recognize the place shown by that photograph.

A. This is up the river above my place a mile or more.

Q. Were you present when it was taken?

A. Yes sir.

Q. On whose farm was it?

A. On Mr. Jim Baugh's farm.

General Drake: We except to this evidence and this photograph, for the reason that it is not in rebuttal of anything that the state introduced. As I remember, this Mr. Baugh, of whom the witness speaks, was introduced by the Ducktown Copper Company.

Q. What farm is that on?

A. This view shows part of the L. C. Allen farm, and part of the Jake Smith farm on Star Creek.

Q. Does it show part of the Henry Smith place?

A. Yes sir, it shows the place where he cultivates; he tends his
father's place; he has not got any place of his own. This
1602 view is kind of back up Star Creek; this is not down the
river.

Q. I show you photograph 127, Explain what place is there represented.

A. Yes sir, I recognize this view very readily.

Q. What is it?

A. This is Old Tomato Patch on the bank below my residence.

Q. How close is that to this man Turner's place?

A. It is between a quarter and a half mile.

General DRAKE: I except to this photograph as being taken at a place not referred to by the State, and not being in rebuttal of anything the State had introduced.

Q. I show you photograph No. 124, Please state of what that is a picture?

A. This is a picture of a portion of my farm, back up the river from my place, and it shows part of the pea fields, part of two pea fields, and this is the first part. Here is a four acre lot of land in corn where the tops and fodder has been taken and shocked on it, and further up is a 12 acre square on the river that has not been foddered.

General DRAKE: I except to this evidence, for the reason it is not in rebuttal of anything the State introduced.

Q. I show you photograph 123. Please explain of what that is a photograph.

A. Well, sir, that is a picture of one of my teams and myself driving, hauling watermelons. There is an old patch of corn planted there also in that view.

General DRAKE: I except to that photograph as evidence because it is not in rebuttal.

Q. I show you photograph No. 128. Please explain of what vicinity that is a picture.

A. This is in the lower end of the melon patch, four acre melon patch, fronting back up the river on my farm.

1603 General DRAKE: We except to that, for the reason that it is not in rebuttal.

Q. I show you photograph No. 125. Please explain of what that is a picture.

A. That is the entire view back down the river from up above my place.

Q. Does that include the Chastain farm?

A. Yes sir.

Q. Is that or not the farm on which this man Turner lives?

A. Yes sir, this is L. A. Allen's farm. You can see one corner of Baugh's farm. You can see the entire Chastain farm, my farm and part of R. C. Miller's across the river west of me.

Cross-examination.

By General **Drake**:

Q. Mr. Rogers, you have taken a good deal of interest in representing the copper company in this matter, have you not?

A. No sir.

Q. Why was it you went with them a mile and helped them to take pictures, or the pictures you have testified about?

A. Mr. Reese, here, asked me if they could get a view from up there, and I told him yes, and I think Mr. Thompson asked me if I cared to go up there with them, and I told him no. That was the only trip I ever made with them anywhere, sir.

Q. You did volunteer to go with them up there and show them a view?

A. Yes, I went with them on that trip.

Q. Now, don't you know, Mr. Rogers, that there could be lots of trees and vegetation burnt and scorched by sulphur fumes and those pictures that you have testified about here not show it at all?

1604 A. Well, I don't know about that, sir. I can't answer.

Q. Do you not know that those pictures do not show lots of things that you know do exist there, in that view as you look at it?

A. I suppose there might be a few small things that are not shown in it. I recognize very readily the lands and crops. I can distinguish them very readily.

Q. Do you not know that those pictures are not true to nature?

A. Well, it looks very true to me.

Q. Do you not know that it does not look like it does when you stand and look at a forest?

A. It looks just as natural to me as a picture could look.

Q. Don't you know that you cannot see or distinguish a single leaf, hardly in those pictures?

A. Well, I don't know as I could stand off there and sort them out and state that one was a white oak and another a post oak.

Q. Then you don't swear that that picture is true to nature, do you?

A. It looks as true to me, and I would swear that it is as true to the best of my knowledge, as a picture could be. It represents all those farms and fields.

Q. It is true, you say, as true as a picture could be? Don't you know that it is not true or a perfect representation of nature?

A. It looks so to me.

Q. Didn't you just say that you could not tell a white oak from a black oak, nor a sweet gum from a black gum, nor anything else of that kind in the picture?

A. Not as far off. It shows they are all green, and growing, to me.

1605 Q. When you and I and General Fowler looked at that picture just now, did I not ask you if there was not sage grass in that picture, and you told me there was not?

A. There was no sage grass down that valley.

Q. Didn't General Fowler ask you if there was not sage grass in that picture; didn't he ask you that just now?

A. No sir, not that I remember of now.

Q. When we were looking at them there, did you not say there was no sage grass in there?

A. I said: I beg leave to differ; I didn't think there was any sage grass there.

Q. Was not General Fowler talking about sage grass turning a little brown in there; didn't he do that just a minute ago?

Q. He mentioned something about sage grass, and I said, I beg leave to differ; I didn't think there was any sage grass in the picture.

Q. Could not their corn, as shown there in the picture, be almost bare of ears *or* corn, and that picture not shown it?

A. In that large one of course the corn could be short, a short crop, and I suppose you could not tell it that far. That first picture of the near field that was taken at my barn, shows very plainly what that corn is, to me.

Q. It shows to you, but would not show it to a man that did not know that the corn was there, would it?

A. It looks like that to me, on that first field.

Q. Are you now in the employ of the Ducktown Copper Company?

A. No sir.

Q. Haven't they got you employed to come up here?

A. Sir?

Q. Haven't they got you employed to come up here as a witness?

1606 A. I was asked to come down here.

Q. Are you not employed by the Company?

A. I don't know as I could call it that. They said probably they would want me to recognize some photographs.

Q. Didn't you agree, did not they agree to give you a stipulated price?

A. No price was agreed on. They says, We will take care of—we will pay your expenses down there so you can leave your business and go.

Q. You haven't given any stipulated sum then?

A. No sir.

Q. Nor any agreed upon?

A. No sir.

And further deponent saith not.

W. E. ROGERS,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 7, 1914.
[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 238.

Next witness, B. H. HOLT, for defendant, in rebuttal, having been duly sworn, testified as follows:

Examined by Mr. FOWLER:

Q. Mr. Holt, where do you live?
A. I live at Blue Ridge.
Q. Do you travel to any extent through North Georgia?
A. No sir, I have not for the last year.
1607 Q. Have you been down about Ellijay?
A. Yes sir.
Q. Through what section around Ellijay have you been?
A. Well, I have been out on Tails Creek.
Q. In Cartecay Valley?
A. Yes sir.
Q. How often have you been in Cartecay Valley?
A. Well, I have been there but twice this year.
Q. When was that?
A. Along about—I have notes that I can refer to—I believe it is about the eighth; I would not be positive; let me see. (Witness starts to inspect notes.)

General DRAKE: I object to the witness referring to his notes to tell when he was down there.

A. (continued). I think it was about the eighth.
Q. The eighth of what month?
A. Of September. I would not be positive that was the date, but it was in September.
Q. Were you in company with some parties who examined the timber through that section?
A. Yes sir.
Q. Who else was in the party?
A. Mr. Reese and Mr. Thompson and the chauffer, and Mr. Carter—Mr. Carter was the chauffer. He was driving the car.
Q. Was that the trip on which many photographs were taken?
A. Yes sir.
Q. Were you present when the photographs were taken?
A. Yes sir.
Q. I wish you would describe that trip, just where you went.
A. Well, do you mean on the whole trip?
Q. State in a general way where you went.
A. The first trip we went out the Cartecay Road, down 1608 to Cartecay Post Office, down by Dyke and Yukon and to Ellijay. I would like to refer to my notes, so as to get my dates right.
Q. Refer to your notes.
A. We went from Cartecay over to Dyke, and from Dyke over

to Snider, and came back by Dyke and went down the Jasper road, and to the Finley Settlement, and Allen Settlement, and Teems; there are a whole lot of places where we made pictures.

Q. I don't care so much for the names as for the different sections through which you passed.

A. We went back to Ellijay and stayed there that day.

Q. Were you on Turniptown Mountain?

A. Yes sir.

Q. What parts of Turniptown Mountain were you on?

A. Well, I don't know what you term as Turniptown Mountain. What I know as the Turniptown Mountain is down about the Shippen farm in the Valley and the Arnold orchard, and the Northcutt orchard is on Walnut Mountain, and we know them that way. The Arnold orchard is on the Smith Mountain. I don't know how it is on the map. It is all Turniptown Mountain, I suppose; there are two Turniptowns there.

Q. You were not up on top of Turniptown Mountain?

A. I was up on top of the mountain, that is, on the Walnut and Smith Mountains.

Q. You say that is all called Turniptown Mountain?

A. I suppose it would be called Turniptown Mountain; some call it that; away down there, is where we went.

Q. Were you on Bush Head Mountain?

A. Yes sir. That is between Ellijay and Higdon's Store.

Q. Were you on Flattop Mountain?

A. No sir.

Q. Did you make any special examination of the forests on Bushhead Mountain?

1609 A. Well, not specially we did not; just a general observation the best we knew how to look.

Q. Did you take a number of photographs at various places you visited?

A. Yes sir.

Q. State whether or not you photographed the most favorable places, or did you pick out representative places?

A. We took representative places.

General Drake: We except to that question and answer, because the question suggests the answer to the witness and puts it in his mouth.

A. (cont'd). We took fair representations of the situations as nearly as we knew how; we took representative ones as much as we could.

Q. How much time did you spend there on that trip?

A. About twenty-one days and a half.

Q. Did you examine the crops in that vicinity?

A. Yes sir.

Q. What kind of crops did you examine?

A. Corn, beans, pease, and tomatoes.

Q. State whether or not you are more or less familiar with smoke injury to vegetation and the forests?

A. Well, I think I know what smoke injury is; I know it when I see it.

Q. How long have you lived in Blue Ridge?

A. I have only been there two years.

Q. Where dod you live before you came there?

A. At Ellijay, in Gilmer County.

Q. Then you are fairly familiar with that whole vicinity in there?

A. Yes sir, I was born and raised there.

Q. Were you raised right in Ellijay?

A. No, I was raised in Turniptown Valley, on the place known as the old Holt farm.

1610 Q. State whether or not you passed through a considerable part of the forest and over quite a number of farms in that vicinity, on this trip?

A. Yes sir, we met a good many.

General **Drake**: I except to that question and answer because the question suggests the answer.

Q. For what purposes did you go on that trip and make these examinations?

A. For the purpose of seeing if there was any damage done by smoke.

Q. State whether or not you could detect any damage from smoke to the forests?

A. Well, I never saw any on the whole trip, in any county except one place that I thought was from smoke.

Q. Where was that?

A. That was close to what they call Barnes Mountain, Barnes Gap, back through the Petersons' somewhere back toward Higdon's Store.

Q. Now, as to those sections around Ellijay and in the Cartecay Valley on Turniptown Mountain, to Bushhead Mountain and through there; Did you detect any injuries from smoke?

A. I did not.

Q. Was there any injury to any of the growing crops of any variety?

A. None that I could tell.

Q. State whether or not they had the usual amount of crops growing through those vicinities?

A. Yes sir, just about the same as they generall- grow but it was much better.

Q. How did the crops compare this year with other years?

A. They were considerably better I think.

Q. Did you ever see a better crop through those vicinities, than are growing this year?

A. I don't think I ever did.

1611 Q. How old are you?

A. Forty-five.

Q. And you have known that country all of your life?

A. I was born and raised there.

Q. Did you not examine Arnold's orchard?

A. Yes sir.

Q. Did you examine Northcutt's orchard?

A. I made a trip through it; we did not examine it, as thoroughly as we did the Arnold orchard, but we went through it.

Q. Describe the condition of the Arnold orchard.

A. That would be very hard to do. It was in a very bad state of cultivation, grown up with bushes and briars, and it has not been properly cared for. It has not been properly pruned. I could not say about the spring, but they have got a considerable amount of disease in there of different kinds.

Q. What kinds of disease have they in the orchard?

A. They have the scale, and the Coddling Moth, and the Aphis; they get on the roots. I don't know what it is myself. That is the way I pronounce it. I don't know how it is called.

Q. Did you ever engage in the orchard business?

A. I worked two years in that orchard, in the Northcutt orchard, not the Arnold orchard.

Q. Did you have charge of the Northcutt orchard at one time?

A. I had charge of it, cultivating it, pruning it, and sett*l*ing it out, etc.

Q. Was the San Jose Scale on the Northcutt orchard when you had charge of it?

A. Yes sir.

Q. How long ago has that been?

A. Well, eight or nine years ago. I don't remember just the date.

Q. Do you know whether or not it has been in orchard
1612 ever since?

—. ——.

Q. What is the condition of the Northcutt orchard now?

A. It is in bad condition.

Q. Describe its condition.

A. It has been very poorly cultivated, and has grown up pretty much in weeds, briars, and broom sage. In some places the bushes are as high as the trees; and around the edges in parts of it, and some places of it have been cultivated.

Q. What kind of diseases did you find in the Northcutt orchard?

A. Pretty much the same as in the Arnold orchard.

Q. Did you find a disease known as the spot——

General Drake: We except, because the question suggests the answer.

Q. — sometimes called frog-eye?

A. Yes sir. That is, on the foliage, that you are speaking about, on the leaves; it comes in bl-ck spots. I don't know what the proper name of the disease is.

Q. What is the appearance of the leaves *e*ffected with the spot, or frog-eye?

A. They have brown spots on them, and eat holes out, and they turn brown around them, and the edges of the leaves curl up.

Q. Was or not both of the orchards affected with that disease?

A. Yes sir.

Q. Do you know what time of year that disease usually appears in an orchard?

A. No sir, I do not.

Q. Are they affected pretty much all the season with that disease?

A. I don't think they are, early in the spring; I am not sure about it; I do not know.

Q. State whether or not, in examining those orchards
1613 you found any indication or evidence whatever of injury
from smoke fumes?

A. I did not see anything that I thought was from smoke. I could not say positively about it, but I did not see anything that looked like smoke injury to me.

Q. Now, you have described one trip. Did you take another one, or not?

A. When?

Q. This fall.

A. No; we made them all right along at the same time in different parts of the country.

Q. The 21 days that you have mentioned were consumed on both trips altogether?

A. Yes sir, we made them right straight along. We set in the first of the month and worked on. I may be mistaken about that. I think may be we worked some before that.

Q. Now you speak of seeing something that looked like smoke injury in some places. Where was that?

A. That was over in Fannin County, from Higdon's Store back across to Barnes' Mountain. There is a little section in through there where the leaves were browned in spots, about that I thought was from smoke. I don't know whether it was or not.

Q. What was the extent of the apparent injury there?

A. Very little. I could not say. The leaves were just browned a little.

Q. Did you see anything like dead trees?

A. I saw trees that had been dead, and things, there.

Q. Did you see any trees dying this season?

A. I saw a few, yes sir, on the whole trip, scattered here and there about.

Q. Did you see any more trees dying in this section that you mention, where there was more injury than in any other section?
1614 A. No sir.

General Drake: We except to the question, because it suggests the answer, and as calling for a conclusion.

Q. Did you see any crops anywhere in that section where you say there was some appearance of injury from smoke?

A. Yes sir.

Q. What kind of crops?

A. Corn, beans and pease.

Q. Did you observe any injury to the crops?
A. Not a bit.
Q. Was the corn looking good?
A. It was as fine a crop as I ever saw.
Q. Did the gardens look well?
A. Yes sir.
Q. About how large a section was that where you were through there was here and there some foliage scorched?
A. It was something like a couple of miles, I guess, in different spots. Maybe a little further and maybe a little shorter. From Barnes' down to Hidgon's Store.
Q. Did you visit any other points and localities other than those you have mentioned?
A. I did not get through stating them. We made a trip out from Copperhill and came out by the Mobile mines, and back up through what we call Bell's Hollow, in that direction, and Pack's and old man Richards' and up to Old Man Barnes' and the Oasis post office.
Q. On all of your trips did you notice any apparent smoke injury other than that you have described?
A. No sir.

Cross-examination.

By General DRAKE:

Q. What kin are you to Ham Holt, who testified here yesterday?
A. A cousin.
1615 Q. What is your profession?
A. I was raised a farmer. The last two years I have been working in a store.
Q. Working in a store?
A. Yes sir.
Q. At Blue Ridge?
A. Yes sir.
Q. Did you ever work for the Copper Companies, either of them?
A. No sir, I never worked at the mines any.
Q. How is that?
A. I never worked for the company at the mines, any.
Q. Did you ever work for them anywhere?
A. On outside work, traveling for them, I have.
Q. You traveled with them?
A. Like on these inspection trips.
Q. You have done that at various times, have you not, made inspection trips for them?
A. Yes sir, a few times.
Q. How much do they give you for doing this kind of work for them?
A. Well, they give different prices.
Q. Give the different prices, please.
A. On inspection trips over the forest, they give four dollars a

day and expenses, and on a trip like this up here, three dollars a day.

Q. You mean like up here today?

A. Yes sir.

Q. But when you do forest work, they give you four dollars?

A. Yes sir.

Q. You speak about seeing frog-eye in Northcutt's orchard, I believe, did you not?

A. Yes sir.

1616 Q. What kind of a disease is frog-eye?

A. I don't believe I can explain it to you, sir.

Q. You don't know what causes it, do you?

A. I do not.

Q. This Aphis that you speak of, what causes it?

A. I can't tell you sir.

Q. You don't know anything about the nature nor the cause of it, either?

A. I don't know what causes it; I know it is on them.

Q. The San Jose Scale; What kind of a disease is that, and what causes it?

A. I cannot tell you what causes it. I think I know it when I see it. I know it is mighty bad on an orchard when it gets on it.

Q. You were down there, I believe you say, on September 8th?

A. I would not be positive about the date. I was in the Northcutt orchard about the 5th, I think.

Q. The 5th of September?

A. I think it was.

Q. When did you begin that trip?

A. It was on the first day of September.

Q. And wound up then about the 21st, if you were out for twenty-one days, as I believe you say?

A. I was out twenty-one days, but I think we did a little work before that. We commenced the first day of regular work, September first.

Q. How many times have you testified for this Copper Company before?

A. Just one time, I think.

Q. On all the trips you have made, and everything, you have never testified but one time for them?

A. That is all I have any recollection of.

1617 Q. How is that?

A. That is all I have any recollection of.

Q. Did you ever work for the Tennessee Copper Company in this capacity?

A. A little bit.

Q. Did you ever testify any for them?

A. I would not be positive about it.

Q. Mr. Holt, if you clerk in a store, how is it that you can drop your work and go and work for twenty-one days inspecting smoke injury for this copper company?

A. I stand in with my boss man.

Q. Who is your boss man?

A. L. B. Crawford. I have got a daughter that takes my place when I am out.

Q. Who were with you on this trip of inspection beginning on the 1st of September?

A. On the first part of it, there were M. S. Clayton, Jason Aikins, and somebody else, but I don't remember who it was, now. That was the first two or three days.

Q. Sherman Reese was with you all the time, was he not?

A. No sir.

Q. He was not with you?

A. No sir. We got with Mr. Reese on the fourth, and quit that crew.

A. That is what I am talking about. I thought you said Reese was along?

A. I said he was along in the crew on that trip, but this was when we first started out.

Q. I said, on this trip of 21 days; I want to know who all were with you; of course, I do not mean every minute of the time, but I mean during the time.

A. I told you that Mr. Reese came in on the 4th day of the month, with a crew, and I left this crew we started out with, and went with Mr. Reese and Mr. Thompson. 1618

Q. Now, the first trip; where did you start and where did you go?

A. We started from Blue Ridge, or I did, and went to Ellijay and met the balance of the boys, and went to Manse Clayton's from Ellijay; and from Manse Clayton's we wnet to Jason Aikin's, and took the Hodge slate road and went across the Blue Ridge Mountains into Fannin County, and back and around through that section of country back to Mr. Clayton's that night.

Q. The next day, we went out through by Roy, Georgia and up through Bucktown to a man by the name of Caleb Weaver's, and took the mountain and went to the top of the mountain and went to—I don't know the name of the mountain, but out across to the edge of Dawson County and turned back, and came back to Mr. Weaver's that night and stayed all night. I left the crew there and came to Roy and met another man who went back to my crew, and I went with Mr. Reese's crew, and then I made a trip after we got through with them, started out and went to the Cartecay Post Office and up to Duke Post Office, and up to Sinder, and around that section of the country through there.

Q. Well, now, had Mr. Reese got with you by this time; if not, when did he get with you?

A. He got with me there; I told you I met him.

Q. I didn't understand you. You talk so fast. If you would talk more distinctly, I could understand more easily. Then, when Mr. Reese got with you, where did you go?

A. He was with us on the last part of the trip which I described there.

Q. Well, the first part of that trip, did that carry you east of the railroad or west of it?

A. East.

A. What part of the trip was it that you went into the

1619 Barnes' Mountain section?

A. That was back in Fannin County. That was back northwest from Ellijay.

Q. I know; but I say, what part of your trip was that, the first of the last of the trip?

A. That was along toward the last of it.

Q. That was up toward the 15th to the 20th of September, then, was it?

A. It was the 15th of September when we were over there. I remember that date.

Q. You are not an expert on any kind of plant diseases are you, Mr. Holt?

A. No sir.

Q. You never made any study of them?

A. I studied them a couple of years, but I am no expert at it.

Q. You have made no special study? You don't know those things only just what you see?

A. I have made a study for two years, while I was working in an orchard, I got all the help I could from different journals, farm journals. The State entomologist furnished me books on certain diseases, and I studied them as best I could. Of course, I am uneducated and not learned like some folks are, but I can tell what they are when I see them.

Q. What books did you study?

A. I can't tell you. They were different journals, I told you.

Q. If you studied those books that much, why is it you cannot tell what kind of diseases you have just been talking about?

A. That is more than I can remember. I cannot remember them all.

Q. Why is it, Mr. Holt, that the copper company picked you out to go and do this work for them when you are no expert?

1620 A. I can't answer that question. I don't know.

Q. You don't know how they came to find you?

A. I can't tell you about that.

Q. You didn't volunteer your services to them; did you go and hunt them up and volunteer to go?

A. No, I don't know as I did.

Q. Well, do you know that you did not?

A. Well, they spoke to me about it, and I told them I would go, but I never did go to them, volunteer to go or tell them I would.

Q. Who spoke to you?

A. I don't remember who?

Q. You can't remember who came to you and made the trade with you?

A. Mr. Reese did on that special trip. He hired me to meet him and go with him to a certain place.

Q. He hired you, and he didn't go to see you?

A. Not at that time, no.

Q. Mr. Reese is the regular employee of the copper company?

A. I suppose he is.

Q. And the conductor on nearly all these investigation tours, is he not?

A. I could not say about that. He was on that one.

Q. And the ones you have been with him on.

A. And the ones I have been with him on.

Q. I believe you said that the injury you speak about finding over there in Fannin County was on Barnes Mountain, what is known as Barnes Mountain.

A. A little this side of Barnes Mountain; between Barnes Mountain and Higdon's Store, at different places.

Q. That is west of Epworth about how many miles, or southwest.

A. I'll be dogged if I can tell you.
1621 & 1622 Q. How is that?
A. I don't know. I can't tell you.

Q. About how far south is it from the Ducktown Copper Company at Isabella?

A. I would guess about eight or nine miles. I don't know that it is as a fact.

Q. You were not down about Arnold's orchard and the Hill orchard about May of this year, were you, Mr. Holt?

A. No sir.

Q. And you did not see those orchards in June, soon after May, did you?

A. No sir.

Q. And at no time until in September?

A. I don't think I was there until September.

Redirect examination.

By Mr. Fowler:

Q. Mr. Holt, how far is that place you thought you saw some smoke injury, from Ducktown, the Ducktown Copper Company?

A. I call it all the same place, that is, from Copperhill; I was going the distance of about eight or nine miles from Copperhill, I think, before I hit it.

Q. Is it about the same distance from Copperhill, as Isabella?

A. No, it is further from Isabella. From Copperhill, we covered everything from that one point.

Q. How far is it from Isabella?

A. I don't know.

Q. Is it still farther?

A. Yes sir.

Q. Now did you and Mr. Reese gather or cut any twigs from those trees in the Northcutt and Arnold orchards?

A. I think we did when he was along; I think we did.

Q. When who was along?
1623 A. Mr. Reese. I think he cut some.
Q. You don't know what became of them?

A. He brought them to Ducktown.
Q. You have not seen them since?
A. No sir.

Recross-examination.

By General **Drake**:

Q. Mr. Holt, if Dr. Hedgecock, a plant pathologist, and an expert on that and kindred subjects, also a government expert on smoke injury, accompanied by Mr. Johnson, a government expert forester, and Mr. Clark, a government expert forester, should have gone over this same territory, or practically the same territory that you did in August of this year, when the foliage was all fresh, or should have been, and in its most vigorous life, and they should testify that smoke injury was evident in all that section, would you then think there was no smoke injury?

A. I would think so, according to my judgment. I have nothing to do with the way they think. The way I see it, there was none there. The frost tint showed a little bit. The effect of smoke is quite a different thing, the way I see it. I think I know what smoke is. I am no expert, though.

Q. What is smoke injury, if you know so well what it is?

A. If I see it on leaves, I can tell you. I have got no education to explain things, but I have got sense enough to know how it is.

Q. If you know how it looks, tell how it looks?

A. It would be hard to do that. I can say one thing, and that is, we have got the best crops we have had in twenty-five years, in my judgment, beans, pease, and all.

Q. In spite of the awful drouth, they had up there all the year?

A. Yes sir.

Q. You have volunteered that statement, without answering
1624 my question, have you not, Mr. Holt?

A. Which?

Q. About having such fine crops up there?

A. I couldn't help it; they are there to show for themselves.

Q. But did I ask you anything about that?

A. No sir, I don't think you asked that, but I answered it.

Q. Why do you volunteer to answer questions you are not asked about?

A. I did it to show you that I am telling what I think is the truth about it.

Q. Isn't it a fact that you are so much interested in this copper company that you want to help them out, and that is the reason that you go on and tell things you are not asked about?

A. No sir, I am not any more interested in the copper company than I am in the citizens.

Q. Please tell us what smoke injury looks like, as nearly as you can describe it.

A. If I had some leaves to show you, I could explain it. It has a brown tinge, a different brown from any other brown

Q. What is the difference between it and frost injury, or Frog-eye, or Aphis, or San Jose Scale?

A. I am not able to explain the difference, but if you bring them before me, I will show you the difference.

Q. But Mr. Holt, you know I can't bring them here, don't you.

A. I don't know.

Q. Then please, in the best way you can, tell me how smoke injury looks to the ordinary eye.

A. I will not undertake to explain.

Q. Well, if you cannot answer that question, please tell us how smoke injury affects the life and growth and vigor of trees or other vegetable plants. 1625

A. Well, it scorches the young tender buds, is as nearly as I can explain it, and saps the growth of them, seems something like frost, but it is a different thing from frost.

Q. Describe to us, if you can, how the scorching or the burning of the buds and tender leaves, will hinder the growth and development of the trees and plants.

A. It is natural, when you see a thing growing, if it is interfered with, it will be stunted.

Q. Why is sulphur smoke injurious to vegetable life?

A. I cannot answer that.

Q. How is that?

A. I cannot answer that. I don't know.

And further deponent saith not.

B. H. HOLT,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 7, 1914.

[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 230.

Next witness, A. M. Johnson, for defendant, in rebuttal, having been duly sworn, testified as follows:

Examined by Mr. Fowler:

Q. Mr. Johnson, where do you live?

A. In East Ellijay.

Q. How long have you lived there?

A. I have lived on the lot I now live on 24 years.

Q. What is your age?

1626 A. Sixty-five years.

Q. How ling have you been acquainted with that vicinity around Ellijay?

A. I came to the county in 1872, and I stayed there until 1875. I went away and was gone eight years, and I moved back in 1881. Since that time I have lived in the county all the time.

Q. Have you been in Cartecay Valley this summer?

A. In the Cartecay Valley?

Q. Yes.

A. I have been through the entire—I have not been through the entire valley, but I have passed along over a portion of it. I have been at work and have not been over the country.

Q. In what business are you engaged?

A. Building.

Q. Contracting?

A. Yes sir, contracting.

Q. Where have you been at work this summer?

A. I have been in Gilmer County all the summer. I built a building at east Ellijay in the spring, and in the summer at Ridgeway twelve miles west of Ellijay, and I am on a building twelve miles south of Ellijay in the Boilertown district. However, during the months of June and July I was at home all the time; I was at home in East Ellijay up to about May Court, I went then to the west side of the mountain and commenced to build a school house.

Q. In what part of June?

A. I think I left there perhaps about the middle of June.

Q. How close do you live to Mr. Frank E. Shippen?

A. I suppose it is half a mile or less.

Q. Now, has your business required you to travel between those points considerably?

A. Well, I don't have occasion to go by where he lives
1627 scarcely at all.

Q. I am talking about through that section around Ellijay.

A. Yes sir, from my place to town. I am a mile from the Courthouse—the old town.

Q. Are you in sight of Turniptown Mountain?

A. I can see the south side and the west end, from my home.

Q. Is it in plain view of your home, that portion of it?

A. A portion of the south side and west end, is; I can see the high points very clearly from my home.

Q. Can you see Bush Head Mountain?

A. Not from where I live. I can see it going around towards Ellijay from where I live.

Q. Have you seen it frequently this year?

A. Yes sir. I have seen Bush Head Mountain; that is the mountain around up town.

Q. Do you know Flattop Mountain?

A. Yes sir. I have not been nearer than Ellijay up in that direction; it is quite a ways from Ellijay.

Q. State whether or not you have made any observations through that section with reference to smoke damage?

A. I have not made any investigation, nothing more than I would except being impressed with it generally as I passed through the country.

Q. Have you seen any indication whatever of any smoke injury this year?

A. I have not seen anything that I consider to be smoke injury. I consider the conditions were improved.

Q. What is the general condition of vegetation through all this section that you mentioned?

A. It was very dry in the spring. Corn and crops are very good. I think the corn crops are perhaps better than usual. There is quite a quantity of cabbage and apples that have come on
1628 the market regularly.

General **Drake**: I except to the question and the answer, as not being in rebuttal of the State's evidence.

Q. How have the gardens been this season?

A. So far as I have noticed, I have not seen any trouble except with the Irish potatoes. We did not make any. I think the early Irish potatoes were generally a failure.

Q. Why were the early Irish potatoes a failure?

A. Ours failed because they were planted on the same ground that they were grown in last year, and they were destroyed by the bugs, which was the general complaint, caused by the dry season.

General **Drake**: We except to this question, for the same grounds stated last above.

Q. State whether or not you had a pretty bad drouth up to the middle of the spring?

A. Yes sir.

Q. Have you seen any indication on the forest leaves of any damage?

A. I have not seen any discoloration this year, in Gilmer County, on the roads.

Q. Have you seen much smoke in there?

A. I have occasionally seen some smoke in the County. I have not seen it this summer I don't think, any worse than I have other times. Occasionally we have had some smoke in the County. I don't think it is any worse this summer than it has been for quite a while, that is, that I have noticed.

Q. Have you seen any smoke of much consequence in Ellijay Valley?

A. No sir. At the place I live, and where I worked in the spring, there is a mountain between me and the valley, and I did not have a clear view of Ellijay Valley.

Q. Have you been around in Ellijay?

A. Yes sir. I have passed a great deal through Ellijay.

1629 Q. Have you noticed any injury around Ellijay from smoke?

A. Any injury?

Q. From smoke, any injury around Ellijay?

A. I have not noticed any, that I thought was *dor* to smoke in the Valley, at all.

General **Drake**: We except to all this evidence as not being in rebuttal of any evidence introduced by the State of Georgia.

Q. Are you fairly familiar with the conditions up through Gilmer County, Georgia, and Fannin County?

A. I am better acquainted with the conditions in Gilmer County than I am in Fannin County. I know generally the conditions in Gilmer County. I think I ought to know them.

Q. I am going to read you a short article which appeared in the Atlanta Constitution October 27th, as follows:

"Gilmer and Fannin Full of Prosperity. Both Counties Raise Plenty of Food Stuffs, But No Cotton."

"Gilmer and Fannin Counties are two places where the cry of hard times has not penetrated, according to Hon. Herbert Clay, Solicitor General of the Blue Ridge Circuit, who was in the city Monday. And there is a very good reason for this gratifying state of affairs. Gilmer and Fannin Counties raise no cotton, but do raise beef cattle, hogs, hay corn, and country produce of all kinds for which already market is already found. "Gilmer and Fannin Counties are literally bursting with prosperity," said Mr. Clay. "In the little town of Ellijay, in Gilmer County the merchants are actually discounting their bills, and there at the present time nine brick stores — being erected in that thriving little settlement. "There is no cotton raised in either Gilmer or Fannin County and the farmers are not burdened with any commodity for which they have not a ready market. They raise quantities of produce, such as butter, and milk and eggs and chickens, which alway- find a quick sale. 1630 They have nor shipped any hogs, but have raised enough for their own consumption and their smoke houses are filled with meat for next winter. I have been pretty well over both Counties and I have heard no word of hard times. On the other hand, I have seen unlimited signs of prosperity. The answer to this, of course, is that they raise no cotton, but do raise the things for which there is alway- a ready market and which they can consume at home. The lesson of Gilmer and Fannin Counties is a striking one at the present time."

State whether or not, to your personal knowledge those conditions do prevail throughout Gilmer County?

A. Taking the county generally over, I think it is in a fairly good condition.

General DRAKE: I except to that question and answer, and also to the article read into the record purporting to come from the Honorable Herbert Clay, for the reason that it is irrelevant, immaterial, and not in rebuttal of anything in this law suit, and for the further reason that Mr. Clay is one of the most active politicians in the state of Georgia, and takes every opportunity to compliment everybody and everything he comes across.

A. (cont'd). With regard to conditions now and six or seven years ago, this year farmers are not buying any corn. In 1907, I think it was, we bought some twenty thousand bushels of corn which was shipped to the County. I do not know that there has been any corn shipped to the county this year. The Corn Club boys have been at work, they are putting a little more life into the farmers, and they are making a little more corn than usual. I think we have a crop this year that will make a better crop than we have made since I have been in the County.

Cross-examination.

By General DRAKE:

Q. Mr. Johnson, you are one of the regular standbys of 1631 the copper company when they need evidence, are you not?
A. No sir.

Q. Have you never testified for them before?

A. Yes sir.

Q. You have gone out and gotten up evidence for them, have you not?

A. No sir, I have not.

Q. Why did you pull out that article which was read into the record by General Fowler a little which ago, and hand it to him, when he had not asked you anything about it?

A. It was handed to me this morning, and I saw they were looking for it.

Q. You were willing to volunteer that, were you not?

A. Well, I supposed they wanted it.

Q. But no body ever asked for it did they?

A. They were asking each other for it.

Q. You have worked for both the Tennessee and Ducktown Companies?

A. No sir, I have not.

Q. You have worked for the Ducktown Company?

A. I did work for the Ducktown Company a good many years ago, a few days' work.

Q. I mean in the capacity of investigator?

A. No sir, I never worked for the Ducktown Sulphur, Copper and Iron Company in my life as an investigator.

Q. Have you ever worked for the Tennessee Company?

A. Yes sir, I have for the Tennessee Copper Company.

Q. How many times have you been sworn as a witness in these cases for either company?

A. In Court?

Q. In any Court?

A. I was at Chattanooga, I reckon, in two hearings in Chattanooga, and I have made one or two other statements; I don't remember just now how many.

1632 Q. You made affidavit for them away back in 1906, did you not?

A. I think I signed an affidavit in 1905 or 1906.

Q. That was when they were getting up the original case, and you swore in that case there was no damage then, did you not, that you saw?

A. In 1905? I don't remember.

Q. Don't you know that you swore for the company in that affidavit, and swore that there was no damage then that you could see, just like you have sworn today?

A. In 1905?

Q. When ever that was.

A. Do you mean an affidavit that I made for the Tennessee Copper Company, or for——

Q. The companies, both of them, in this case.

A. I never made any affidavit for the Ducktown Sulphur, Copper and Iron Company, in any case that I know of.

Q. I am asking you about that affidavit that you did make in 1905 or 1906, that you have just said that you made; didn't you swear in that affidavit there was no damage?

A. I don't remember of making one that early; I don't have any recollection of making one that early; I never made any investigation——

Q. Didn't you just say a while ago that you thought it was in 1905, when I asked you if, in 1906, you did not do it?

A. I signed the statement that Mr. Shippen presented to me in about 1905. I do not remember that I made any affidavit for the company that early. I do not remember if I did.

Q. When did you make that affidavit for the companies?

A. It was in 1908 or 1909, as I remember. That was the first investigation I had ever made.

Q. Well now, in 1908 or 1909, you swore that you could not observe any damage?

1633 A. There was no discoloration in one of those years. It was either in 1908 or 1909. We went upon the idea when there was diccoloration there was damage, and if there was no discoloration there was no damage.

Q. You do not qualify as an expert on smoke?

A. No sir, by no means.

Q. All you know, you base on discoloration, and you never saw any?

A. I view it as a citizen would those things, from a practical standpoint.

Q. Well now, Mr. Johnson, if a lot of your neighbors such as the Hensons who lives — Hill's land, and Mr. Arnold's just east of you two or three miles, and Mr. Frank Ship- and Will Shippen, and Witherow and John H. Clance, if those men were to swear that they saw smoke in that orchard settle down there for a day, and Mr. J. T. Deweese, and it was so bad that you could see it and smell it, and it hung there for a day or longer and after it had lifted in a day or two the leaves began to crimp up on the edges, and the apples all shrivelled up and fell off in a few days, would you think that was caused by smoke injury?

A. Caused by smoke?

Q. Yes.

A. I think they would be sincere in their statements.

Q. Would you think that would be the cause of the apples falling off?

A. If I had seen nothing anywhere else, I would think a great many things. A great many things occurred down there beside the smoke. I saw the same conditions existing in other places.

Q. If you were to see the conditions I have described, you attribute that to smoke, would you?

A. It might be that I would, if I was to see them.

Q. If these men were to swear that they saw those conditions, would you attribute them to smoke?

A. I would think they were sincere in it.

1634 Q. Won't you answer the question, and say that you would attribute that injury to smoke, *if* that orchard?

A. It is reasonable that they would be correct about it.

Q. I am not asking you as to whether their statements would be correct, but I am asking you if you would attribute the injury to the orchard to smoke, or would you attribute it to insects if the condition should be as I have described them, there?

A. The smoke might contribute to the injury, there is no doubt about that.

Q. Then you will not make it any stronger than it might contribute?

A. Yes sir, it might contribute to the injury; it might be a part of the injury. It might perhaps be the major part of it.

Q. You have got a son-in-law named Pickett, have you not?

A. Yes, sir.

Q. I will ask you if he has an orchard right there in east Ellijay?

A. Yes sir, it is right in front of my door across the street.

Q. Have you ever examined his orchard?

A. I have been about it and have pruned it sometimes in the spring for him.

Q. If your son-in-law would say that he had seen smoke in there and that leaves soon thereafter crimped up, and the apples shrivelled and fell off, would you think that that was smoke injury?

A. I would think he was sincere in his statement, and if it was there and remained there long enough it would do damage.

Q. Please answer me, about what you think of the real facts of the injury.

A. If he stated that he saw smoke there, is that the question?

1635 Q. Yes sir.

A. I would think at least that he was sincere in it, and that perhaps his injury is a fact.

Q. That perhaps it would be smoke?

General **Fowler**: The defendants object to any questions with reference to Pickett's orchard, because there is no evidence which has been introduced by the State of Georgia with reference to any statement made by Pickett, or any thing with reference to his orchard.

General **Drake**: The question was asked, and I insist it is competent, for the reason that this witness is on cross examination, and I am only testing his knowledge and his fairness as a witness. For that purpose only was the question asked.

And further deponent saith not.

A. M. JOHNSON,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 7, 1914.
R. S. C. HUTCHINSON,
Commissioner.
[SEAL.]

Mileage, 260.

Next witness, J. C. AIKINS, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by General FOWLER:

Q. Where do you live?
A. I live in Gilmer County.
Q. Whereabouts in Gilmer County?
A. I live in the eastern part, near Ralston Post Office.
1636 Q. How long have you been living there?
A. I have been living there 36 years.
Q. Near what mountains are you?
A. I am near the Stovall Mountains, and Bald, and Turniptown in there.
Q. Are you familiar with Turniptown Mountain?
A. Yes sir.
Q. How near do you live to it?
A. It is some eight miles from Turniptown Mountain to where I live.
Q. Are you familiar with Cartecay Valley?
A. Yes sir, on the Cartecay side, up the river.
Q. How near do you live to Cartecay Town?
A. It is a right smart little piece down the Valley the way the road goes, we have to go around the mountain to get there. It is about twelve miles.
Q. Have you traveled through there this summer?
A. Yes sir, I have been out there this summer.
—. ——.
A. I was out there some time back.
Q. How did you happen to be there?
A. I was looking for some stock I had out there, when I was out there last.
Q. Have you been in Turniptown Mountain this year?
A. I have been on the mountain between Turniptown and where I live on the Creek. I live on Turniptown Creek, and it heads up opposite; I did not go that way. I have been on the mountain between the two creeks.
Q. How high a mountain is that compared with Turniptown?
A. It is about the same height.
Q. How near is Turniptown Mountain?
A. There is a creek that runs between the two mountains.
Q. Is it a part of Turniptown Mountain?

A. Yes sir, it is.

1637 Q. Have you given attention to vegetation and forests in that country?

A. It has been al- right as far as I have seen.

Q. I say, have you given any attention to it?

A. Yes sir, I have noticed it.

Q. What has caused you to go through the forests this summer; what have you been doing?

A. I worked a while with Mr. Quintrell, but we did not go on this party. I have worked in parts of the country with him.

Q. You mean for the Ducktown Company?

A. Yes sir.

Q. What were you doing for them?

A. We were just prospecting the timber.

Q. When was that?

A. That was the first of September.

Q. Who was along at the time?

A. M. S. Clayton, and Mr. Quintrell, and a man by the name of Addington—Josephus Addington.

Q. How many days did you spend?

A. We worked nine days, we were out then, but Sunday we laid off.

Q. Through what section did you go?

A. We went up east of me there, across to the line on the Blue Ridge, to the County line, and then took the mountain back a piece, and then came down and went into what is called Bucktown, and worked out there a while, and then took what we call the Buncombe Mountain and came back down through the valley and went out by Roy Post Office.

Q. Over how many miles did that take you?

A. Well, I suppose we were about 20 miles a day, that we traveled.

Q. Did you notice the timber pretty carefully?

1638 A. Yes sir, we noticed it carefully.

Q. Were there any crops in the neighborhoods through which you passed?

A. Yes sir.

Q. Did you notice the crops?

A. Yes sir.

Q. Was that whole territory through which you passed in Gilmer County?

A. Yes sir.

Q. Have you always lived in that County?

A. I have lived in that County ever since I was about six years old.

Q. Are you familiar with injuries from smoke fumes?

A. Yes sir.

Q. State whether or not on your trip you saw any indications of damages this year from smoke fumes?

A. I did not see any signs at all.

Q. Did you notice the crops?

A. Yes sir, I noticed the crops and the gardens.

Q. What is the condition of the crops through this country?

A. On all of my land, they are as good as you ever saw them. They were injured early by the drouth some.

Q. Did you see any gardens?

A. Yes.

Q. What is the condition of the gardens?

A. The gardens were doing fine, doing well.

Q. Did you see any signs of smoke injury in any of the gardens?

A. No sir, I never saw any signs.

Q. Did you see any signs on any of the crops?

A. No sir, on none of the crops.

Q. What kind of crops did you notice?

A. Corn and pease and beans, and such as that.

Q. Did you see any fruit trees?

1639 A. Yes sir, I saw some.

Q. What kind of a fruit crop is it this year down there?

A. Well, there are some orchards that are pretty full, you know, and in some places bit. Where the orchards are on good land, they are good, and the fruit appears to be pretty good, and where it is on thin land, and poor, you know, the trees are going down.

Q. Did you see any signs of smoke injury on any fruit trees?

A. No sir, I never did.

Q. Did you pass the places of any persons who had been witnesses for the State of Georgia in this case?

A. Why, yes, we passed through some of them.

Q. Do you remember who they were?

A. Well, there was Mr. Evans, and Mr. Teemes.

Q. Who else?

A. I really don't know who have been here. We passed and saw a good many. I don't know who——

Q. Did you go by Northcutt's orchard?

A. No, we never got up on that; we only went to the end of it; we did not go on his, and we never got to examine it good. What we saw of it was all grown up and had not been cultivated.

Q. Did you make an examination of the forest and crops around Mr. Teemes?

A. Yes sir.

Q. And Mr. Evans?

A. Yes sir.

Q. Did you find any indications of smoke damage around there?

A. I don't think we did. Mr. Evans had a patch or corn that sorter had the rot, or something; I don't know what it was.

Q. Something like smut?

A. Something that way.

General Drake: We except to the question, for the reason 1640 that it suggests the answer, and for the further reason that it is not in rebuttal.

Cross-examination.

By General **Drake**:

Q. How many times have you been out on these scouting trips for the copper company?

A. Sir?

Q. How many times have you been out on these scouting trips for the copper company?

A. I have never been out but the one time.

Q. Who all was with you on this trip?

A. The men I told you about.

Q. Was Mr. Sherman Reese there?

A. No, he was not with us.

Q. Was Mr. Holt?

A. No sir. He was with us one day, and then went in another crew.

Q. You said frost killed some apples up in that country?

A. Yes, it did in the spring.

Q. It did not kill any along about the last of May when they were about as big as hen eggs, did it?

A. I don't know. I don't suppose it did.

Q. Well, now, Mr. Aikins, you know J. W. Henson, don't you, who lives on Arnold's place?

A. Yes, I know him.

Q. And George Henson who lives on Mr. Hill's place, and Rogers, who lives on Mr. Hill's place?

A. Yes sir.

Q. And Sherman Henson?

A. Yes sir.

Q. You know all of them?

A. Yes sir.

Q. And John Clance? You know him?

1641 A. Yes sir.

Q. And you know J. T. Deweese?

A. Yes sir.

Q. If all those men should come up and swear that smoke came in there in May and got into Mr. Arnold's orchard and settled down so bad that you could see it, and smell it, and it was so bad it looked like the woods were on fire, and it smelt like sulphur smoke, and then in a day or two after that the leaves crimped up on the edges like they were burnt, and all the fruit practically fell off in two or three days, would you attribute that to smoke or frost, if there had not been any frost?

A. There was no frost then of course.

Q. Would you think it was caused by smoke?

A. I don't know what it was caused by. I never saw it.

Q. Would you think it was caused by smoke?

General **Fowler**: I object to that testimony. It is wholly irrelevant what the witness thinks, from the state of facts described by counsel.

General Drake: I insist that it is competent, because this witness has undertaken to qualify and to know what smoke injury is, and undertaking to testify as to the absence of smoke injury in all that country. The question is asked for the purpose of testing his knowledge on smoke injury.

General Fowler: The witness expressly stated it was not smoke injury.

Q. Would you attribute that to smoke injury, if a thing like that should happen?

A. I cannot tell. I never saw that.

Q. You would have to see it?

A. Well, it would be better.

Q. If you saw a thing like that, would you say that the smoke caused it?

1642 A. Yes, if I could see it, and it showed, I would believe it.

Q. You would believe what these men would swear?

A. Well, I suppose they would swear the truth.

Q. Aren't all these men good citizens?

A. I think they are.

Q. Are they not among the very best citizens of Gilmer County?

A. Well, they are just a common average, I suppose.

Q. Will you say that J. T. Deweese is not above the average citizen in that country?

A. I don't suppose he is. I guess he is about the common citizen.

Q. And Sherman Henson?

A. Sherman Henson is a good man.

Q. Aren't both of those men above the average in intelligence, honor, and high standing, of the citizenship in that community?

A. Well, I don't know that they are above, sir.

Q. Isn't Mr. Deweese a school teacher, and has he not been teaching school and farming there for the last twelve or fifteen years?

A. He has been there some eight or ten years I reckon. I don't know just how long he has been in there.

Q. Is he not the county president of the Farmers' Union, in that County?

A. Well, sir, I don't know about that.

Q. You don't know that?

A. No sir, I don't believe it, and I don't know who is the president.

Q. You have got a son who is an employee of a big grocery company in Copperhill, have you not?

1643 A. I have got a son there that owns stock in a whole sale company.

Q. He has stock in what?

A. In a whole sale house.

Q. In a whole sale grocery house?

A. Yes sir.

Q. That is located in Copperhill?

A. Yes sir.

Q. And he lives there?

A. Yes sir, he lives there.

Q. And works for that company he is a stockholder in?

A. Yes sir, he works there.

Q. Does he not own a large amount of property there—real estate?

A. He has got some. I don't know exactly how much he has got.

Q. Don't you know he has got a good deal?

A. Well, he has some buildings there.

Q. Isn't it practically all the property he has invested in Copperhill, Tennessee?

A. Well, not all.

Q. Practically all, I said.

A. Well, I guess the majority of it is there.

Q. Is that the same company that Mr. Vestal owns stock in over there?

A. I think he has got a share in it.

Q. A share?

A. Yes sir.

Q. He don't work for them, though, does he?

A. Who?

Q. Mr. Vestal; he don't work there for them?

A. I don't know whether he works there or not.

Q. Are you an expert on smoke injury, Mr. Aikins?

A. Why, no, I don't suppose I am.

Q. You don't know?

1644 A. I know when anything is killed.

Q. You don't know the fact that it affects the leaves, or the leaves of a tree, do you?

A. Yes. I have noticed it around Ducktown when it used to kill them there.

Q. Do you know how it injures a tree, the effects, the first effects, the second effects, and so on?

A. It generally commences on the top leaves and kills the leaves.

Q. It kills the leaves?

A. Yes, sir, that is my experience with it.

Q. How do the leaves look?

A. They sort of crisp up and look white.

Q. Then later, do they turn brown?

A. Well, they shed off after a while.

Q. They will shed off by the smoke?

A. Yes, they will do that.

Q. If injury occurs, if a bad lot of smoke comes in in May and kills the leaves they will fall off before fall, will they not?

A. I should think they would fall off sooner.

Q. Have you known of any falling off in July?

A. I have seen them around Ducktown there, years ago (fall off in July).

Q. Have you not seen them in Georgia?

A. No sir, I have not seen them in Georgia; I have not seen the leaves bit in Georgia.

Q. You have never seen a bitten leaf in Georgia?

A. No sir, I never have.

Q. Did you sign one of those affidavits away back yonder in 1906?

A. What sort of an affidavit?

1645 Q. For the copper companies?

A. For which?

Q. For the copper companies?

A. No sir, I never signed a paper concerning it in my life. I have never been asked to, and never signed it.

Q. I didn't know. I wanted to find out.

A. Well, you know now just how it is.

Redirect examination.

By Mr. Fowler:

Q. Has or not Mr. Vestal had an interest in that wholesale concern in which your son is interested?

A. I don't know how much he has. Of course he has got a right smart.

Q. Mr. Vestal is now president?

A. Yes sir.

Q. And has he not been prompting counsel on the other side while you have been testifying?

A. Yes.

And further deponent saith not.

JASON AIKINS,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 7, 1914.
R. S. C. HUTCHINSON,
Commissioner.
[SEAL.]

Mileage 280.

Next witness, M. S. Clayton, for defendant, in rebuttal, having been duly sworn deposed as follows:

1646 Examined by General Fowler:

Q. Where do you live?

A. I live in Gilmer County, near Ellijay.

Q. How long have you lived in Gilmer County?

A. I was born and raised there.

Q. How old are you?

A. Fifty-six.

Q. Whereabouts do you say you lived in the county?

A. East of Ellijay, four miles and a half east of Ellijay.

Q. What is the name of your Post Office?

A. Pike.

Q. Are you familiar with the Cartecay Valley vicinity?

A. Yes sir.

Q. Are you familiar with the Turniptown Mountain?

A. Yes sir.

Q. How close do you live to Turniptown Mountain?

A. Well, do you mean Turniptown Mountain or Stovall Mountain?

Q. Yes, both of them; they are right side by side.

A. I am against the Stovall Mountain. I am about a mile and a half from the Arnold orchard.

Q. Have you examined the Arnold orchard this year?

A. Yes sir.

Q. When were you through, or have you been through the Northcutt orchard this year?

A. Yes sir.

Q. When were you through them?

A. It was in August, sometime in August; I don't recollect the date.

Q. At whose instance was it that you went through there?

A. Mr. Reese's.

Q. Was he along with you?

A. No sir.

1647 Q. He asked you to go see it?

A. Yes sir.

Q. To what extent have you examined the trees in those two orchards?

A. I was in the Northcutt orchard twice, and in the Arnold orchard twice before this season, I believe.

Q. Have you had any experience with fruit trees?

A. Yes sir.

Q. To what extent?

A. Well I put out an orchard about eighteen or twenty or twenty-five years ago, and I have been putting out orchards for the last twenty-five years; I have been in the orchard business.

Q. Have you been growing fruit for the last twenty-five years?

A. Yes sir.

Q. I wish you would describe what you found the condition of those two orchards to be?

A. The condition of the orchards?

Q. Yes sir.

A. Well, I found them in pretty bad condition.

Q. In what respect?

A. Well, It was for the want of cultivation, and then there was a lot of scale in it, and borers; we found a lot of dead trees, we found lots of trees dead in the orchard.

Q. What appeared to have been the cause of their death?

A. The trees that were really dead was caused, I think, by borers; and then there were a lot of trees that were not really dead, they were dead to some extent, and they were killed by scale, that is as far as they were killed; they were not finally killed, but——

Q. Did you see any frog-eye in the orchards?

A. Yes sir, I saw some of them affected with frog-eye.

1648 Q. How was the orchards with reference to cultivation?

A. They were neglected.

Q. How was it with reference to cultivation; had they been properly cultivated or not?

A. No sir.

General DRAKE: We except to the question as putting the answer in the mouth of the witness.

Q. How far are those orchards from you?

A. It is about a mile and a half to the Arnold orchard, and Northcutt's orchard would be a couple of miles, a half a mile above it. It is right adjoining the Northcutt orchard.

Q. In what direction is your orchard from this orchard?

A. From my orchard out there?

Q. Yes.

A. It is northwest from my place to the Arnold orchard.

Q. Has your orchard been at all affected this year by smoke fumes?

A. No sir.

General DRAKE: We except to that as not being in rebuttal.

Q. State whether or not you found any evidence in either the Arnold or Northcutt orchards of injuries from smoke fumes?

A. Not any.

Q. Is there a man by the name of Henson, who has an orchard there, or not, or did he work in one or the other of these orchards?

A. Sherman Henson is supposed to control the Arnold orchard, but Asbury's orchard, I don't remember being in his orchard; we were at his place.

Q. It is the Arnold orchard that Asbury was looking at, is it?

A. Yes sir.

1649 Q. State whether or not you have observed in your neighborhood any evidence of smoke injury to forests, this year?

A. Not any.

Q. Have you noticed the crops any?

A. Yes sir.

Q. What is the condition of the crops through that section?

A. Good, they are good crops.

Q. How do they compare with other seasons?

A. They are a great deal better, I think; I think our crops are a lot better than common.

Q. Have you observed any signs of smoke injury to any of the crops through that section?

A. No sir, not any.

Q. Have you been about Ellijay much this year?

A. Yes sir.

Q. Have you given any attention to the crops around there?

A. Yes sir.

Q. What is the condition of the crops there?

A. It is good as far as I have noticed.

Q. Did you see any sign of any smoke injuries to any of those crops?

A. No sir.

Q. How is your apple crop this year?

A. Pretty fair; mine is not as good as my brother's are right at me. We both live on the same lot of land.

Q. How many wagon loads have you marketed so far?

A. I think my book shows I have hauled 40 or 41 loads since the first of August.

General **Drake**: I except to the question and answer as being original evidence, and not in rebuttal of anything proven by the State of Georgia. This orchard has not been in evidence until now.

Q. How many trees have you got in your orchard?
1650 A. In my orchard?
Q. Yes.

A. Well, I claim about 1,800 but I could not say I have got that many.

Q. How many has your brother?

A. I declare I don't know. I think he claims about four thousand or six thousand, right along there somewhere.

Q. That is J. W. Clayton, who has already given his testimony?

A. Yes sir.

Q. State whether or not you went with Mr. Aikins through parts of Gilmer County?

A. Yes sir.

Q. Through what sections did you go?

A. Well, we went in—I live in the sixth—we were in the Seventh out to the Fannin County line; that was northwest, and then we went due east, and on around south and west and northwest. I was not in the north part of the County.

Q. Did you go through the northern section of Gilmer County?

A. No sir. The northern section, that is northwest, away in that section, but due north, I was not there.

Q. You went up to the Fannin County line?

A. Yes sir.

Q. Through what mountains did you pass?

A. I crossed the Blue Ridge going east, and up to the Springer Mountain, due east, and the McClure Mountains on southeast.

Q. Did you pass Bush Head?

A. No sir, I never went up there.

Q. Or Flat Top; have you not seen that?

A. No sir, I did not go up there.

Q. About how much territory did you cover this year, how
1651 many miles?

A. Well, I declare I don't know. I think we traveled ten days and probably averaged twenty or twenty-five miles a day.

Q. Did you make pretty careful observations as you went along?

A. Yes sir, we were out for that purpose.

Q. State whether or not you saw any evidences whatever of smoke injury on the trip?

A. Not any at all.

Q. Did you notice the crops, as well as the forests?

A. Yes sir.

Q. Did you notice any injury to the crops?

A. Not any.

Q. Did you make any observations through the mountains last year?

A. Yes sir.

Q. In 1913?

A. In Gilmer County?

Q. Yes.

A. No sir. I live in the county; of course I travel backwards and forwards. I worked in Fannin County last year.

Q. Did you make any observations in Fannin County in 1913?

A. Yes sir.

Q. Over what sections?

A. Well, I was in the twenty-seventh and 9th and 8th and 11th. I was some in Gilmer County, too; I was in the 28th and some in the 6th and 1st. We went in the 6th and 1st, on a lot and a half, I believe.

Q. Who was along at that time?

A. Mr. Higdon. That is, I went on a survey. Mr. Ray Higdon worked with me on the inspection. Mr. Reese, Sherman
1652 Reese and I, could not give you all the men's names, I don't guess.

Q. For what purpose were you making that inspection?

A. For smoke damage.

Q. Did you see any evidences of smoke damage on that trip?

A. Yes sir, I think I saw a little up about Epworth school building, in the eighth, I think that was.

Q. Where abouts was it you saw that?

A. About Epworth School building, near the State line.

Q. That was last year?

A. Yes sir.

Q. That was the only place you noticed it?

A. Yes sir.

Q. Were you engaged in assisting in making a survey of the Shippin and Vestal lands?

A. Of Vestal's, not Shippen's; I don't think his were in it.

Q. Was that what you were doing on the occasion that you mention?

A. I was working for the Ducktown Sulphur, Copper and Iron Company at Isabella on the Vestal lands.

Q. How long were you working for them at that time?

A. I think I got in there 46 or 47 days, is my recollection.

Q. In passing through the forests, did you give careful attention to them?

A. Yes sir.

Q. Were you instructed to do so?

A. Yes sir.

Q. And you say the damage you have mentioned was the only damage you have noticed from smoke during the entire trip?

A. I was 40 some odd days on the survey and twenty-one on the inspection, I think.

Q. Then after you spent about how long on the inspection
1653 in addition to these 45 or '6 days.

A. Twenty-one days, I think, I got in on that inspection.

Q. Did you or not pass through a large part of North Georgia on both trips, including both trips?

A. Yes sir. Well, I was over a good portion of Gilmer County and Fannin County.

Q. Have you seen around Ducktown there a good deal of smoke injury?

A. Yes sir.

Q. And you are familiar with its appearance?

A. Yes sir.

Cross-examination.

By General Drake:

Q. You are a regular professional witness for these copper companies, are you not?

A. Well, I think this is the first time that you have been in the courts?

Q. You have been working for them and making these inspection tours for them, have you not?

A. Yes sir.

Q. Do you know why it is that the Ducktown copper company goes right past J. T. Deweese's and these Henson's that we have been talking about and John Clance's, who live fronting north, and jumps right over the mountain on the south side and gets you and your brother for witnesses? Do you know why that is?

A. If they get us as witnesses?

Q. Why they go across on the south side of the mountain to get their witnesses, and do not get them of the north side?

A. No sir, I can't tell you about that.

Q. You are on the south side of the mountain, are you not?

1654 A. Yes, I am on the south side from the Arnold orchard.

Q. And the Arnold orchard and the Northcutt orchard front north, do they not?

A. Yes sir.

Q. And toward these copper companies, and yours is on the opposite side from them?

A. Yes sir.

Q. Well, you are an expert on tree diseases, are you?

A. No sir; No sir.

Q. You do not qualify then as an expert?

A. What do you say?

Q. You do not qualify as an expert?

A. No sir.

Q. You don't know what causes frog-eye, do you, in apples?

A. No sir.

Q. Do you know enough about injury to apple trees to know that if anything could injure the leaves and cause a portion of the o fall off and weaken the vitality of the trees, that it would cause nsects to take hold more than it would in a vigorous, healthy tree?

A. Well, I don't know whether I understood you just right or ot.

Q. What I mean is this, Mr. Clayton: If a tree for any cause hould be injured, would it not make it less apt to resist attack of any ind of an enemy?

A. Well, I should think so.

Q. And if smoke should come along and settle into an orchard nd kill a part of the leaves and a big part of the apples, and thereby weaken the vitality of the tree, would it not be calculated, if there was any San Jose Scale in the country, to make it more susceptible to that injury and take hold easier than it would if it was vigorous and none of its vitality weakened?

A. Well, that might be so.

1655 Q. Do you know what causes San Jose Scale?

A. Well, no sir. I just know we have got it in our orchards, and I do not know where—Well, I have read and heard where it originated, but I cannot tell you now.

Q. You and your brother have raised good crops of apples and especially your brother, in spite of that disease, have you not?

A. Yes sir. Well, he did. He has got the advantage of me. He sprayed a good deal more that I did. I left off the spray. I used to think the smoke was hurting it until we went to spraying, and since then I have decided it was something else.

Q. And Mr. Arnold has sprayed, and Mr. Hill has sprayed regularly, this summer, have they not, or did until they lost their apples?

A. Yes sir, he sprayed, or they claimed they were going to. I was not there when they did the spraying.

Q. You did not see it?

A. No sir.

Q. If smoke was to settle down in Mr. Arnold's orchard in May and you could see it like the woods were on fire, and you could smell it so bad it would make you sneeze, with sulphur, and a few days thereafter the leaves crimped up like they were burnt or frost bitten almost and the apples began to shrivel, and practically all of them fell off in the course of a few days, would you think it was smoke that caused that?

A. No sir; I would think that was scale, or something else. I was in the orchards and saw it there was some of those trees that were badly affected, and if there was another tree right by them injured with smoke, if it would get one of those trees it would get the others.

Q. Do you mean to say that scale will jump into an orchard and in one day kill all the fruit and leaves in that orchard? Is

1656 that what you mean to say?

A. No sir, it did not do mine that way.

Q. Then if it killed Mr. Arnold's orchard practically in one day, would you cay that it was the scale?

A. It has been working on it for——

Q. Answer the question, please, sir; would you say it was scale that did that in one day, if all the apples fell off in one day?

A. No sir.

Q. It would not be caused by the scale would it?

A. No sir, it would not be caused by the scale.

Q. It would not be caused by any other insect or disease or fungi, if it did that in one day?

A. But it is not killed.

Q. I am asking you about its effects. I am asking you if that condition existed, was it any disease of the apples that caused it?

A. Nothing that I know of.

Q. Well, what does smoke injury look like?

A. Well, It will commence at the top of a tree; that is the way I locate it; and it will kill it down part of the way and leave the dead limbs and twigs.

Q. I did not mean the appearance after it is killed, Mr. Clayton; I mean the first effects of the smoke. How does it appear on the foliage?

A. It browns the leaves, is the way I find it.

Q. Does it not have the effect of first burning the edges and causing the edges of the leaves to crimp?

A. I don't know whether I saw it when it was first done but I found it after it was done.

Q. Have you observed this effect of it: that after it has browned the leaves in the spring time they will fall off in July or in the early summer?

1657 A. I can't tell you about that.

Q. Did you not see them around Epworth last year, where the leaves had fallen off in July or August?

A. No sir.

Q. When were you over there?

A. It was in October.

Q. Frost, then, had fallen while you were out on that trip?

A. It had done frosted.

Q. It had frosted?

A. Yes sir.

Q. If there had been fresh bitten leaves in June, July and August of last year, you would have seen them in October of course, if those leaves had fallen off?

A. Well, I don't understand that.

Q. If the leaves were bitten in the spring or summer of last year and had fallen off, of course you could have seen them in October when you were down there?

A. No. No.

Q. Where do you get your familiarity or knowledge of smoke injury?

A. I got it about Ducktown.

Q. And what you saw there last year on that trip?

A. Yes, and for several years, this year and last year.

Q. This year and last year?

A. Yes. I did not see any signs that I know of. I ain't been to

Ducktown. I came through the other day; I just came on the train, and that is all the smoke signs I saw were near Ducktown.

Q. You testified how many times in Chattanooga in this same business?

A. Twice, I reckon.

Q. And then this time is the third time, and the only time?

1658 A. Yes sir.

Q. Do you know John Clance, J. H. Clance?

A. I know John.

Q. Do you know Sherman Henson and George Henson?

A. Yes sir.

Q. And Asbury Henson?

A. Yes sir.

Q. And that Rogers that lives *of* Hill's place, the Rogers who lives on Hill's place?

A. Which one?

Q. J. S.

A. John Rogers?

Q. Yes sir.

A. Yes sir, I know him.

Q. Do you know J. T. Deweese?

A. Yes sir.

Q. And Frank Shippen, do you know him?

A. Yes sir.

Q. And Will Shippen?

A. Yes sir.

Q. Do you know their general character?

A. Well, not for certain I do not. I know them.

Q. Do you know how they are held in the community, generally speaking?

A. Yes sir.

Q. Are they good citizens?

A. Well, as far as I know, I reckon so.

Q. You would believe them on oath, would you not?

A. Part of them.

Q. Which ones that I have named is it you would not believe? Please tell me which one of those men you would not believe on his oath. Answer the question, Mr. Clayton.

A. Well, I guess in common things I would believe them
1659 all, I reckon, but——

Q. You would believe them all? Do you not know that Mr. J. T. Deweese is county president of the Farmers' Union?

A. He is said to be, I don't know it. He is said to be.

Q. And don't you know he is one of the best citizens in that country?

A. No sir, I do not know it.

Q. Don't you know that he is a good citizen, and held that way by the community?

A. Well, as far as I know.

Q. Don't you know that Sherman Henson is?

A. Yes sir.

Q. And Asbury Henson?

A. Asbury Henson is all right, as far as I know.

Q. Then you say you would believe them all on oath, do you? You say you would believe them all on oath?

A. In some things I would, and in some I would not.

Q. Please name the ones you would not believe on oath on some things. Tell me which one of those men you would not believe on his oath.

A. (No answer.)

Q. His name.

A. Do I have to?

Q. I think so, Mr. Clayton. Answer the question.

A. Well, on certain grounds, I will tell you, some of them I would not believe on oath.

Q. Name which you would not believe.

A. I would not believe Will Shippen on his oath.

Q. What other one would you not believe, besides Will Shippen?

A. Nary one of them.

Q. Why would you not believe Mr. Will Shippen?

A. I have heard so much said about him. I said, I put
1660 conditions in my answer about Mr. Will Shippen. I said
according to what was said, I have heard him swear, and
heard what people said about him.

Q. On what line, now, Mr. Clayton?

A. Well, different lines; reports and law suits and one thing and another.

Q. And about smoke?

A. No. I leave smoke out.

Q. Would you believe him on his oath about smoke injury?

A. Not according to what people say. I don't know anything about the facts.

Q. Don't you know it is a fact that a great many of them would not believe you on that subject down there?

A. That is al- right.

General Fowler: I object to the question, because it is wholly incompetent.

Q. Isn't it a fact, Mr. Clayton, that you are so wrapped up in this copper company, that you have worked for them so much and so long, and getting so much of their good money that you just naturally lean toward them, and can't help it?

A. No sir, I don't lean toward nobody.

And further deponent saith not.

M. S. CLAYTON,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 7, 1914.
[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 280.

1661 Next witness, W. T. HIGDON, for defendant, in rebuttal, having been duly sworn, testified as follows:

Examined by General FOWLER:

Q. Mr. Higdon, where do you live?

A. I live at Higdon's Store, Fannin County, Georgia, in the ninth land district.

Q. Do you run what is known as Higdon's Store?

A. I used to, just the post office.

Q. Do you live in Higdon, now?

A. Yes sir.

Q. How long have you lived there?

A. I came there in 1889.

Q. And have lived there ever since?

A. Yes sir.

Q. What is your age?

A. I am forty-seven the 13th day of May.

Q. Are you engaged in mercantile business?

A. No sir, I am farming.

Q. For how many years have you been farming?

A. Well, I have been farming a little off and on ever since I have been in that place.

Q. How large a farm have you?

A. I have about 160 acres of land.

Q. What kind of crops have you grown this year?

A. I have grown some corn and melons and potatoes and pease and pumpkin-, and a little rye.

Q. What time of the year did you sow your pease?

A. I planted them with corn.

Q. Did you plant them early?

A. It was late in May when I planted the corn.

Q. Have you observed the other crops in that neighborhood during this year?

A. I have been pretty close at home all the while. I had the post office, and when I was not working, my wife ran me off.

1662 I had a little stuff in the field.

Q. How far is your field from Higdon's store.

A. Right close.

Q. State whether or not your crops have been damaged this year to any extent by smoke fumes?

A. There was some smoke in that locality in June, and if my memory serves me, between the 8th and 9th of June, 1914.

Q. To what extent did that smoke damage you?

A. Slightly; it was a slight damage.

Q. State whether or not at any other time during this season your crops have been injured by smoke?

A. I have not noticed it.

Q. Have you given attention to it?

A. I have been right in it.

Q. Did you work in your crops yourself?

A. Yes sir.

Q. Have you noticed any damage on any other occasion to any other crops in that neighborhood during the present season?

A. Well, I have seen something on the corn, and the tops of the corn. Now, there were some fellows came up there, and a man living on my place got a crop, and he had a claim against the company; I live on the bend of the road, and there was an autimobile came along, and the driver says, "hello, what about Mr. Smith over there", and I didn't know Mr. Smith had any claim——

General **Drake**: We object to all that as hearsay.

A. (cont'd). —and I went with them over in the field on my place, and they were looking at some corn, at the tops along there, and at a little orchard on the place, and they saw some little stains on some bushes in the hollows as they went along. That is about — I could tell.

Q. Now, when was that?

1663 A. That was in June, I believe. I will not be positive about that date.

Q. You think it was in June?

A. I would not be positive as to the date they came there.

Q. Was it after the time you saw smoke in there?

A. Yes sir, they came after that, and the corn had matured and the shuck was on the corn. If you plant corn in May, it don't mature until the latter part of the season, in August and September.

Q. It was sometime in August or September that you saw it?

A. Yes sir, it was after it began to mature. There were little dry spots on top.

Q. Have you noticed the forests around in your neighborhood there?

A. Yes sir, I believe I have; I have lived there for 26 years.

Q. Have you noticed any damage to the forest during the present season?

A. I cannot say that I have. There was some slight damage there to the forests, but we have had an unusually dry year there, the worst we have had in 26 years, to my personal knowledge.

Q. Did you observe whether or not that drouth had any effect of the forest?

A. Why, it was in the way of causing springs to go dry and where you looked up on the highlands which were sloping you could see the dead trees along there. I had reason to believe from that that they died from drouth?

Q. What time of year was that drouth?

A. It was along in May and June, and pretty well up to the first of July when it commenced raining, very little rain, but we considered it the dryest year that we have had in 26 years.

Q. You have not made any trips through that country,
1664 have you, since, of the Ducktown country, have you?

A. No sir.

Cross-examination.

By General **Drake**:

Q. Mr. Higdon, You say that corn, where the ears were burnt and the tassels, I believe you described the tassels, did you not?

A. What we noticed, were on top of the shuck. There was slight damage on the shuck, on the top side of the shuck.

Q. That injury could not have been caused by smoke the eighth of June, could it?

A. No, is was not matured.

Q. Because corn on the 8th of June was little stuff?

A. Yes sir.

Q. It did not have any ear on it?

A. No sir.

Q. But on that mountain side above you there, have you been out in there?

A. Which mountain side do speak of?

Q. Have you been on any of them?

A. I have been on the closest to me; I have not been out in the woods.

Q. You have not been out in the woods?

A. No sir, I have not been out in the woods.

—. ——.

A. No sir.

Q. You don't know how the conditions in the forest are out there?

A. Nothing only what I could see from home.

Q. Did Mr. J. P. Vastal, did you know him?

A. Yes sir.

Q. And Mr. John Vestal, John H. Vestal, I believe it is?

A. Yes sir.

Q. And a Government expert Dr. Hedgecock, and Mr. Johnson, and Mr. Clark, two Government foresters, if they should 1665 have gone all through that section, through that country there and should swear that the worst smoke injury there was in August, you would believe them, would you not, in the forests?

A. The worst smoke injury in August? If I had seen smoke—I did not notice any smoke in August, I did not notice anything.

Q. You would not believe there was such damage unless you saw it?

A. There was slight damage there. Those arbitrators though-there was damage on that corn shuck piece that I speak of.

Q. I am speaking of this: If these men had been in this section all around through in there, and testified about it, you would believe it was smoke injury, would you not?

A. Yes, what I saw on mine, I believed.

Q. There was a good deal of discoloration and trees dying all through there? You attributed that to the drouth?

A. Most certainly.

And further deponent saith not.

W. T. HIGDON,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 7, 1914.

[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 240.

Next witness, W. T. Postell, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by General Fowler:

1666 General Drake: We except to the introduction of this witness, because his name was not included with the list filed with us when the notice was given to take these depositions.

Q. Mr. Postell, where do you live?

A. I live in Fannin County, in the Caldwell District.

Q. Do you live near Flat Mountain?

A. Yes sir.

Q. Whereabouts with reference to Flat Mountain?

A. I live right at the foot and on this side of it, within about two miles of the top.

Q. How far is that from Bush Head?

A. I guess it is about four miles, maybe more, maybe not quite so much.

Q. Have you been on Flat Mountain this summer?

A. Yes sir.

Q. How often?

A. I guess I have been up there maybe half a dozen times. My sheep run on the mountain, and I have got to go up there to salt my sheep.

Q. Have you noticed on Flat Mountain, or about Flat Mountain any evidences of smoke injury this summer?

A. Well, I can't tell sir. I didn't see any damage, that is, that I thought was smoke.

Q. Do you raise crops?

A. Yes sir.

Q. Are you a farmer?

A. Yes sir.

Q. What kind of crops did you raise?

A. Corn, cabbage, and garden stuff and pease.

Q. Has there been any damage to your crops this year?

A. If there has I cannot tell you.

Q. Have you seen any damage during the present year to any crops in your neighborhood from smoke?

1667 A. No sir, not around me.

General Drake: We except to all this evidence as not being in rebuttal of anything the State introduced.

Cross-examination.

By General **Drake**:

Q. Did you see some trees up there that had been damaged by smoke?

A. There were dead trees, more or less timber every year around the mountains.

Q. And there is plenty of smoke there every year, too.

A. There is plenty of smoke there every year, I reckon.

Q. Sulphur smoke?

A. Sulphur smoke, I noticed it two days pretty strong.

Q. This year?

A. Yes sir.

Q. You mean by noticing it, that you could see it?

A. In the coves.

Q. And could smell it?

A. Yes sir; Oh, yes, you could smell it.

Q. And you saw it two days?

A. There was smoke in there pretty often, but I couldn't tell; smoke of any kind will settle in the coves.

Q. Yes I know.

A. There were two days, though, that you could smell the smoke.

Q. And about how far is that from the Copperhill and Ducktown copper companies.

A. Well, it is about 17 miles; it is about 14 to McKay's.

Q. And in what county was this; what county do you live in?

A. I live in Fannin, on the Gilmer line, which runs along the top of the mountain.

1668 Q. You are down close to the Gilmer County line?

A. Yes sir, within two miles of it.

Redirect examination.

By General **Fowler**:

Q. Do you remember on what days you smelt the smoke?

A. My recollection is it was along about the tenth of June.

Q. Do you remember whether or not it was the 8th or 9th of June?

General **Drake**: We except to the question as putting the answer in the witness's mouth, and as being rather leading.

A. I do not. I know it was not far from the tenth.

And further deponent saith not.

W. T. POSTELL,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this 7th day of November, 1914.
[SEAL.]
R. S. C. HUTCHINSON,
Commissioner.

Mileage, 250.

(The further taking of depositions was here adjourned until Monday, November 9th, 1914, at 9 o'clock a. m. at which time same were resumed pursuant to adjournment.)

Next witness, J. E. Thompson, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by General **Fowler**:

Q. Where do you reside?

A. Knoxville.

1669 Q. What is your business?

A. Photographer.

Q. How long have you been following the profession of photography?

A. Twelve years.

Q. How long have you been located in Knoxville; during that entire time?

A. Yes sir.

Q. State whether or not you understand color photography?

A. Yes sir.

Q. Have you or not recently made any pictures for the Ducktown Sulphur, Copper and Iron Company?

A. Yes sir.

Q. When was that?

A. In the early part of September, from the 3rd to the 17th, I believe.

Q. September of this year?

A. Yes sir.

Q. Who employed you to take those pictures?

A. Mr. Reese, of the Ducktown Copper Company.

Q. How many days were you on the trip engaged in taking the pictures?

A. To state it exactly, I do not remember. I left my notes at home, too.

Q. State approximately.

A. Two weeks probably a day over; something like that.

Q. In a general way state through what territory you traveled at that time.

A. The first part, we went through the southern part of Fannin County towards Ellijay and Gilmer County. In that county—Is it Ellijay? Is it Gilmer County that Ellijay is in, or Fannin?

Q. Gilmer.

1670 A. Southern part of Gilmer County then, first, and then out through the west part of Gilmer County; then the northern part; then up to the northern part of Fannin County, the Southen part of Fannin County and the territory near Blue Ridge.

Q. Did you go around near Epworth?

A. Yes.

Q. Back in that section?

A. Yes.

Q. Who were with you?

A. Mr. Reese was with me, and Mr. Holt.

Q. Which Holt?

A. Mr. B. H. Holt, and Mr. Quintrell was along on some trips.

Q. That is J. H. Quintrell.

A. Yes sir.

Q. Who selected the places the pictures of which were taken?

A. Mr. Reese selected the biggest majority of them. We took a good many of them from selection by the crowd. Mr. Holt picked out many of them, and Mr. Reese, and I suggested some myself.

Q. What was the object of taking the pictures?

A. As I understood it, it was to rebut some evidence that had been taken in this case previously.

Mr. Hill: I except to the answer as being hearsay, the witness saying that he understood it was for certain purposes.

Q. State whether or not it was your purpose to show the true condition of the forests.

Mr. Hill: We except to the question as being leading and suggestive of the answer desired.

A. Yes sir.

Q. Do or not these pictures show the true conditions of the forests at that time?

1671 A. Yes sir.

Q. State whether or not you picked out the most favorable places for taking pictures, or did you take the forests as they came?

A. I will have to answer that we had a limited number of plates, and we had to distribute them over those two counties, not for the purpose of skimping any place, but we had to make the plates cover the counties, and for that reason we picked places that we thought would generally give the conditions.

Q. Did you or not purposely avoid places that appeared to be more damaged than others?

A. Not to my knowledge.

Q. Did you see any places in the forests which showed more damage than those, pictures of which were taken?

A. No sir.

Q. Who developed these photographs?

A. I did.

Q. State whether or not you have taken a picture of the Geological Survey made by the United States Government of that section of the country.

A. Yes sir.

Q. What particular territory is shown by that portion of the map which you photographed?

A. The territory where we photographed.

Q. That is, you mean the territory over which you traveled, and where the pictures were taken?

A. Yes sir.

Q. Have you the photograph of the map prepared by the Government, present?

A. Yes sir, this is the photograph.

Q. State whether or not you have shown upon that photograph-map the territory over which you traveled?

1672 A. Yes sir.

Q. Have you or nor designated the various points where the several photographs were taken?

A. Yes sir, I have.

Q. How were they designated on that map?

A. By a dot and a arrow showing the direction the photograph was taken, and by numbers.

Q. Are the photographs which you took and which have been developed by you, numbered?

A. Yes sir.

Q. State whether or not the numbers on the photographs correspond with the numbers given on the map?

A. They do.

Q. That is, as I understand, photograph No. 1 is a photograph of the point where figure 1 is on the map?

A. Yes sir.

Q. And what is it the arrow indicates?

A. The arrow indicates the direction that the camera was pointed when the view was taken.

Q. In what color is your journey and the points photographed, represented on this map?

A. In gold, and the routes are in gold lines, the numbers and arrow points in points of yellow.

Q. Will you please file said map as Exhibit A to your deposition?

A. I so file it.

Exhibit A.

Mr. Hill: We except to Exhibit A, as being original evidence, and not in rebuttal of any evidence offered by the State, and as being cumulative of the defendants' original evidence.

Q. Did you yourself make those designations on the plat?

1673 A. Yes sir.

Q. State whether or not you kept notes showing the route which you took, and showing various points where the pictures were taken?

A. Yes sir, I did.

Q. Were those notes taken at the time you were making the photographs?

A. Yes sir.

Q. State fully just what those notes do show?

A. Each note gives a brief description of just what the view is, and where taken, and the object taken.

Q. How many photographs were there?

A. 42.

Q. More than that, were there not?

A. Yes sir; 142.

Q. Have you those photographs present?

A. They are in that box, I think (Indicating).

Q. Now, I wish you would begin at number one, and state the information you possess with reference to each one of those photographs, and continuing on to the last number. You may refer to your notes to refresh your recollection.

The Witness (to Mr. Reese): Have you the duplicate of my notes?

Mr. Reese: Yes.

Q. Is it all the same thing?

A. Yes sir, these are a duplicate of my notes. We commenced September 3rd, 1914, they are as follows:

No. 1. View taken about three and one half miles south of Blue Ridge, Georgia, looking forward from the road leading to Ellijay near the crossing on L. & N. Railroad.

No. 2. View taken about five miles south of Blue Ridge on road leading to Ellijay, looking eastward. Stubblefield in foreground.

1674 No. 3. View taken at Cherrylog, Georgia, looking eastward showing corn field with L. & N. station in the distance.

No. 4. View looking eastward from the road to Ellijay showing Turniptown Valley and Turniptown Mountains in the distance. The Northcutt apple orchard is seen on the mountain. Point of sight, about 3¼ miles north of Ellijay.

September 4th, 1914. No. 5. View taken at Iron Bridge over Cartecay River in East Ellijay, looking northward, showing dead nigger pines on bluff.

No. 6. View taken from Iron Bridgs over Cartecay River at East Ellijay looking eastward, showing corn field and river in foreground.

No. 7. View taken about three and one half or four miles east of Ellijay on the road leading to Cartecay and on the farm of Henson. Photo shows corn foeld and garden and residence of Henson, looking west.

No. 8. View taken three and one half or four miles east of Ellijay on road leading to Cartecay looking northwest, showing Arnold and Northcutt mountains.

No. 9. View taken at Dyke, Georgia, looking eastward, showing apple orchard in foreground, green forest in the distance.

No. 10. View taken on I. B. Evans' farm looking southeast and toward his house, from an old barn.

No. 11. View taken near Dawson County line on Dyke and Snider road, showing fields and green forestry, also the head waters of Turkey Creek and J. C. Walker farm. Near Snider, Georgia.

No. 12. View taken on the road from Dyke to Yukon near crossing of Clear Creek. Photo shows the run down and unkept condition of a Mr. Allen Finley's farm.

No. 13. View taken on the road from Dyke to Yukon showing an apple orchard of L. M. Teague. Clayton Mountains in the distance.

1675 No. 14. View taken on the road from Dyke to Yukon showing the farm of a Mr. Kye Sanford. Looking southward.

September 5, 1914. No. 15. View taken on the road Ellijay to Morganton, looking southwest, showing the town of Ellijay, Georgia. Corn field of Barcley and others in foreground, forest in distance.

No. 16. View taken on the Cox farm looking northeast showing Turniptown Creek Valley, L. & N. Railway and Blue Ridge Mountains in the distance.

No. 17. View taken on the Cox farm looking southeast, showing Turniptown Creek Valley and looking across Shippen's farm. Blue Ridge Mountains in the distance. Camera same position as number sixteen.

No. 18. View on Settlement road between Morganton and Turniptown roads from Will Key's house showing Shippen brothers' farm. Cox and Whitaker farms in the distance.

No. 19. View on the Printup farm, showing apple trees. Two small children in the picture.

No. 20. View on the Printup farm looking southwest, showing apple trees. Ridge in the distance. Three small children show in this picture.

No. 21. View on the Printup farm looking southeast showing apple orchard with Little Round Mountain in the distance. Two small children show in this picture.

No. 22. View from the rear porch of S. P. Holt on Printup farm looking northeast. Fruit trees and lady in the foreground Lill Mountain in the distance.

No. 23. View on Settlement road Morganton to Turniptown at Shippen's land, looking southward, showing Northcutt farm and Mountains in the distance.

No. 24. View on the road Ellijay to Turniptown near Gatlin Post Office looking east, showing Stover and Ball Mountains in
1676 the distance. Road and *and* corn field in foreground.

No. 25. View on the road Ellijay to Turniptown looking southwest. Northcutt orchard in background. Arnold forest in foreground.

No. 26. View on Arnold orchard near line of Northcutt, looking east, Stover Mountain in the distance.

No. 27. View on Arnold orchard near line of Northcutt, looking north, showing *a* Aaron Mountain. Tenement houses of Arnold farm in foreground.

No. 28. View on east end of Northcutt orchard, near barn, looking northwest, showing orchard and Blue Ridge mountains in the distance.

No. 29. View on east end on Northcutt orchard, near barn, showing east end on Northcutt orchard above the barn.

No. 30. View on Ellijay to Turniptown road, looking southward across Ray Ratliff farm. Barn in distance.

No. 31. View on Ellijay and Turniptown road showing farm of E. R. Weeks. M. H. Stanley farm and forest in distance.

September 7, 1914. No. 32. View on Ellijay and Round Top road about three quarters of a mile west of Ellijay on E. W. Watkins' place looking northeast, showing forest, etc., Watkins' farm.

No. 33. View on Ellijay-Round Top road about one mile west of Ellijay on Watkins' farm looking southwest showing forest. Apple tree in foreground.

No. 34. On Round Top road near L. & N. Railroad crossing looking southwest, showing farm of Henry Webb, pease and beans in the foreground.

No. 35. On Round Top road near L. & N. Railway crossing looking north, showing man standing in the pea and bean garden and forest in background.

No. 36. View on Ellijay and Round Top road looking
1677 northward across Pinray's orchard and farm.

No. 37. View on Ellijay-Round-Top road about two miles south of Ellijay, looking north across Pinray and De Board farms. Corn and L. & N. Railway in foreground. Blue Ridge mountains in the distance.

No. 38. On Ellijay-Round Top road at Charles Silver's place. Camera in cotton field looking north east. Cotton and young apple trees in foreground. Ridges in distance.

No. 39. On Ellijay-Round Top road at Charles Silver's place, but looking south west. Forest in the background. Cotton and young apple trees in the foreground.

No. 40. View on Ellijay-Round Top road at Mann Davis' place looking northward. Poor condition of farm in foreground, forest in background.

No. 41. View on Ellijay-Round Top road at Ben Tillery farm, looking north east, showing corn field. Forest in distance.

No. 42. View on Ellijay-Round Top road at Moore Farm, looking south, showing cotton fields, Blue Ridge mountains in distance.

No. 43. View on Ellijay-Round Top road at Moore farm, looking northeast, showing cotton field and peach trees.

No. 44. View on Ellijay-Round Top road, showing Gaul Keener's forest. Blue Ridge Mountains in distance. This place *in* about one mile northeast of Round Top post office.

No. 45. View on Flat Creek road at Gentry's place, near Ellis Mill looking northward, showing barn and mill.

No. 46. View on Flat Creek road looking east, showing forest of Jack Silvers. Road and auto shown in foreground.

No. 47. View on Flat Creek road looking south across Woodward's land. Corn field and forest shown in this picture.

1678 No. 48. View on Flat Creek road looking southeast across the Woodward land. Ben Woodward's house in foreground.

No. 49. View on Flat Creek-Ellijay road looking northeast across Fairbank's farm. House and barn in foreground. Blue Ridge Mountains in the distance.

No. 50. View on Round Top-Ellijay road looking eastward toward Dr. E. W. Watkins' Jr., farm. Blue Ridge mountains in the distance.

No. 51. View on Round Top-Ellijay road, looking east toward W. H. Warlick farm. L. & N. Railway and corn field in distance.

No. 52. View on Round Top-Ellijay road looking across the old Park's place about two and three quarters miles below Ellijay. L. & N. Railway in distance.

September 8th, 1914. No. 53. View on Jasper-Ellijay road looking westward across the Sutton place showing apple orchard and cotton fields.

No. 54. View on Jasper-Ellijay road looking north across the Teams farm, showing corn fields. Blue Ridge mountains in the distance. House to left of picture.

No. 55. View of Jasper road about 7¼ miles from Ellijay looking southward. Road and auto in foreground. Forest in distance.

No. 56. View on Jasper road looking across Harley Martin's place. Cotton in foreground. Forest in distance.

No. 57. View on Cartersville-Blairsville road at A. A. Sutton's place, looking southwest showing farm and forest.

No. 58. View on Cartersville-Blairsville road looking east at A. A. Sutton's place, showing farm and forest.

No. 59. View on Cartersville-Blairsville road looking southwest across Haynes and Sutton farm.

No. 60. View on Cartersville-Blairsville road looking eastward across Simmons' farm, showing farm and forest.

1679 No. 61. View on Cartersville-Blairsville road northeast, across Simmons' farm showing farm and forest.

No. 62. View on Cartersville-Blairsville road. 1½ miles south of Dyke post office, looking westward.

No. 63. View on Cartersville-Blairsville road at Al Allen's farm, looking south showing Allen and Sutton farms and forest.

No. 64. View on Cartersville-Blairsville road looking eastward at Evans Mill on Turkey Creek. This view is one half mile north of Dyke, and shows white pines in middle foreground.

No. 65. View at Mountain View Orchard, J. W. Clayton, Proprietor, looking northeast, showing apple trees and sugar cane. Stover Mountain in distance.

No. 66. View at Mountain View Orchard, A "Stump-the-World" Apple tree. Three men shown in this picture.

No. 67. View at Mountain View Orchard, showing rows of Yates apple trees, with Stover Mountain in distance.

No. 68. View at Mountain View Orchard, showing an apple tree that has been damaged by the borers and San Jose Scale.

No. 69. View at Mountain View Orchard, showing a Ben Davis apple tree.

No. 70. View at Mountain View Orchard, showing a general view of orchard, looking east from the hen house. Stover Mountain in distance.

No. 71. View at Mountain View Orchard, showing a general view looking westward from a rise above the barn.

No. 72. View on road from Pike to Ellijay near Pike post office, showing Holt homestead, farm and forest, south.

No. 73. View on road Pike to Ellijay, near Pike post office, looking east showing Jasper Holt's farm and the forest in background.

September 9, 1914. No. 74. View taken from corner of
1680 new building being erected near the depot or Ellijay station, looking westward, showing old Ellijay in the distance. Corn field in the foreground. Blue Ridge mountains also shown.

No. 75. View taken from corner of new building being erected near the depot, or Ellijay station, looking south, showing station and Kelly corn field in foreground. Shippen Brothers' lumber yard and residence in the distance.

No. 76. View on L. & N. trestle over Cartecay River looking north, showing corn field *or* Jarrett, town of Ellijay, and Blue Ridge mountains in the distance.

September 10, 1914. No. 77. View on the Tayles Creek Ellijay road at a point one mile out of Ellijay, looking eastward, showing forest and Blue Ridge Mountains.

No. 78. View on Tayles Creek-Ellijay road looking west. Pease showing in foreground.

No. 79. Views on Tayles Creek-Ellijay road at C. B. Davis' place, one and one half miles from Ellijay, showing cabbage patch and forest.

No. 80. View on Tayles Creek-Ellijay road, at C. B. Davis' place, looking west from house. Corn in foreground, apple tree at left. Forest in the distance.

No. 81. View on Tayles Creek-Ellijay road, at Mrs. Buckner's place, about one and three fourths miles from Ellijay looking west, showing garden and forest. Mr. Reese and lady in this picture.

No. 82. View on Tayles Creek-Ellijay road, looking southwest, showing flowers and corn in foreground. Forest in the distance.

No. 83. View on Tayles Creek-Ellijay road, looking north, showing forest. Do not know whose farm is shown.

No. 84. View on Tayles Creek-Ellijay road, looking south across Lush and Cobb farms. Forest in distance.

1681 No. 85. View on Tayles Creek-Dalton road, looking southward, mountain creek and bushes in foreground. Forest in background.

No. 86. View on Tayles Creek-Dalton road, looking northeast, showing corn field, house and forest. Blue Ridge Mountains in distance. Atmosphere hazy.

No. 87. View on Settlement road about seven miles west of Ellijay, on Mountaintown Creek road, looking southeast across Gudger farm, corn and forest in foreground. Forest in distance.

No. 88. View on settlement road seven miles west of Ellijay on Mountaintown Creek road, looking southeast. Corn and forest in foreground. House in distance.

No. 89. View on Settlement road between Mountaintown and Ellijay, looking east across Stark's place. Cabin and corn field in foreground.

September 14, 1914. No. 90. View at Burnt Store near Tennessee and Georgia lines, looking northeast, showing Tennessee Copper Company's plant at right, D. S. C. & I. Company at left, Pack Mountain in the distance.

No. 91. View on Pelfrey place, three and one half miles from Copper Hill, looking east, showing apple trees and orchard.

No. 92. View on Pelfrey place, looking eastward, showing orchard. Pack Mountain and smoke from Tennessee Copper Company's high stack in distance.

No. 93. View at Payne's place, looking west, field, barn, and fence in foreground. Grannymarr Mountain in distance.

No. 94. View on D. M. Beaver's place looking south, showing auto, etc. Forest and Blue Ridge mountains in distance. About four miles west of Copperhill.

No. 95. View on Ducktown-Hell's Hollow road, about nine miles from Ducktown, looking northwest across Brook's place showing trees and fence in foreground.
1682 *Grannymarr Mountain in distance.*

No. 96. View on east end of Iron Bridge over Fightingtown Creek, near Madola post office, looking northward, showing bridge in foreground. Forest in background.

No. 97. View on east end *on* the Iron Bridge over Fightingtown Creek looking east, showing cane fields. Forest in distance.

No. 98. View on Ducktown-Oasis road, looking southeast across Billy Couch place, farm and forest.

No. 99. View on Ducktown-Oasis road, leading to Barnes Gap, looking south, at Barnes Mountain. Field in foreground.

No. 100. View on Ducktown-Oasis road leading toward Barnes Gap looking southward at Barnes Gap.

September 15, 1914. No. 101. View on Pack place looking west, showing garden, apple trees, and barn in foreground. Forest and Muletop Mountain in distance. A. H. Pack place located about one mile northwest of Oasis post office.

No. 102. View on road leading from Oasis to Barnes Gap, looking southwest, showing farm and corn in foreground. Forest in distance. This view shows some girdled dead timber.

No. 103. View on road leading from Oasis to Barnes' Gap looking westward, road and Barnes' house in foreground. Gap in distance.

No. 104. View on road, Ducktown, leading to Higdon's Store, about one fourth mile north, of Higdon's Store, looking westward, showing fence and corn in foreground. Forest in distance.

No. 105. View on road, Ducktown leading to Higdon's Store, about one fourth mile north of Higdon's Store, looking southward, showing fence and corn in foreground. Forest in distance.

No. 106. View on Sam Higdon's place near Higdon's Store post office, looking southward showing cleared brush in fore-
1683 ground, corn field in middle distance, forest in distance.

No. 107. View on Brushy Head Gap road, about two miles southwest of Higdon's Store post office, looking southwest, showing fence and orchard in foreground. Forest in background.

No. 108. View on Brushy Head Gap road about three miles south of Higdon's Store post office at Watkins' place, looking southward. Fi*led* and corn in foreground. Near the Fannin-Gilmer County line.

No. 109. View on Bushy Head Gap road, about one mile north of county line. Corn and top of house in foreground. Forest in the distance.

No. 110. View on Bushy Head Gap road about one half mile south of county line, looking north west across George Chancy's place. Fence and road in foreground. Forest in background.

No. 111. View on Bushy Head Gap road about one mile south of county line looking northeast. Road and fence in foreground. Bushy Head Mountain in Background.

No. 112.—View on Ducktown-Ellijay road about three miles north of Burnett post office, or ten miles north of Ellijay, looking northwest. Fence in the foreground. Forest and Blue Ridge Mountains in the distance.

No. 113. View on Ducktown-Ellijay road about four miles northward of Ellijay looking across J. A. Jones' place. Fence shown in foreground. Corn and forest in distance.

No. 114. View on Ducktown-Ellijay road about three miles northward of Ellijay, looking northward across Alfred Steward or the old Kell place, showing pease and corn in the foreground. House, orchard and forest in distance.

No. 115. View on Ducktown-Ellijay road about two miles northward of Ellijay, looking east across Doctor Tankersly place. Meadow in foreground forest and Blue Ridge Mountains in distance. Northcutt at right.

No. 116. View on Ducktown-Ellijay road about one fourth 1684 mile northeast of Ellijay looking across Barley's place, corn field in foreground, forest in distance.

No. 117. View from the upper porch of Mr. V. Trammell's home. Three fourth miles south of Ellijay, looking eastward across Watkin's farm, showing a general view of Ellijay, east, Ellijay, Shippen Brothers Lumber Company, and Shippens' residence at right, station in center, part of old Ellijay at left. Ridges and mountains covered with forest in distance.

No. 118. View on L. & N. Railway 240 yards south of river bridge over Cartecay River looking east showing Mr. Will Shippen's residence in center, Frank Shippen's residence at right. Field in foreground.

September 16th, 1914. No. 119. View on Ellijay, Morganton road looking northwest across J. W. Watkin's place showing apple trees and corn and unkept condition of garden in foreground, forest in distance.

No. 120. View of Ellijay-Morganton road looking north, showing road in foreground, farm and forest in distance. Underwood house in center. (We were refused permission to make photos on the Watkins' place, and these and No. 119 and No. 120 were made under protest of Mr. Watkins even from the public road.)

No. 121. View on road Blue Ridge-Chestnut Gap three miles out of Blue Ridge, looking north, showing orchard and cornfield. Forest in distance.

No. 122. View on Mr. W. E. Rodgers' farm four miles east of Blue Ridge and adjoining the Miller and Chastain's farms, showing a load of watermelons coming from the patch. Corn, melon patch, and forest in background.

No. 123. View on Mr. W. E. Rodgers' farm four miles east of Blue Ridge and adjoining Miller and Chastain farms, showing a load of watermelons coming from the patch (nearer view than No. 122.)

1685 No. 124. View on Mr. W. E. Rodgers' farm looking southeast from Vineyard and near the barn, showing early (ripe) corn in foreground, late corn and forest in distance.

No. 125. View on Morganton to Blue Ridge road about five miles east of Blue Ridge. looking northward showing farms of L. G. Allen in foreground, Dr. Chastain's at left, N. E. Rodgers' in center.

No. 126. View on Morganton to Blue Ridge road looking eastward, showing corn and meadow of Henry Smith and others in foreground, forest in distance.

No. 127. View on W. E. Rodgers' place showing north end of tomato patch.

No. 128. View on W. E. Rodgers' place, showing watermelon patch with men. Forest and mountains in distance.

No. 129. View on Sunset Mountain about one mile westward of Blue Ridge, Georgia, looking northward, showing forest and valleys. Smoke from Tennessee Copper Company's plant in center, extending to left of photo. Pack Mountain at right.

No. 130. View on Sunset Mountain one mile westward of Blue Ridge, Georgia, looking northward, showing ridges covered with forest. Smoke *en*tending in the valleys southwest of Tennessee Copper Company's plant.

No. 131. View on Sunset Mountain about one mile westward of Blue Ridge, Georgia, looking northward, showing forest and valleys. Smoke from Tennessee Copper Company's plant in center, extending to left of photo. Pack Mountain in distance.

No. 132. View on road from Blue Ridge to Copperhill, about ten miles south of Copperhill, looking northward, showing stubble in foreground. Corn and house in distance.

No. 133. View on road Blue Ridge to Copperhill, about nine miles southward of Copperhill, looking westward across John Gilliam's place. Fence in foreground, apple trees at right.

1686 No. 134. View on J. W. Gilliam's place about eight and one-half miles southward of Copperhill looking westward, showing pea field, forest in distance.

No. 135. View on J. W. Gilliam's place, about eight and one-half miles southward of Copperhill, looking eastward showing man in pea field, also corn, etc.

No. 136. View showing quality of corn raised by J. A. Castain, one half mile southward of Epworth.

No. 137. View near Epworth school, looking southward, showing corn, garden, and house.

No. 138. View near Epworth school, looking northeast. Epworth spring in foreground, also corn, and forest with Pack Mountain in distance.

No. 139. View in Epworth cemetery, looking westward, showing J. P. Vestal residence, orchard, corn and barnes.

No. 140. View on Pierceville-Blue Ridge road, looking across William Stepp's place, showing garden and forest. Epworth school in distance.

No. 141. View at Mobile mine looking south showing forest. Flat Top Mountain in distance.

No. 142. View at Hopewell church looking westward.

Q. Will you file said photographs as exhibits one to 142 the number of the exhibits corresponding with the number of the photographs.

A. I so file them. Exhibits one to 142.

Mr. Hill: We except to all of the exhibits for the reason that they are original evidence and not in rebuttal of anything offered by the State, and cumulative of the defendants' original evidence; and further, to all the exhibits offered which the witness has not testified as to distance from the plants of the defendants, 1687 that were taken, or the location at which they were taken.

Q. Mr. Thompson, state whether or not the scale of the map filed as Exhibit A is the same as the scale of the Government map or is it enlarged?

A. It is enlarged.

Q. How many times is it enlarged.

A. Probably twice.

Q. That is, you mean the distances on this map are twice what the distances are on the Government map.

A. Approximately so.

Mr. Hill: We except to the answer because it is indefinite.

Q. You say, "approximately"; what do you mean by that?

A. In making a photograph, paper of that size will shrink or expand, and I don't know just what that is, how much it will be; may be a quarter of an inch to the foot, or may be more or less. I can't say accurately; I can't say; it is a physical impossibility.

Q. Then, whether or not it is made actually twice the scale, depends on the shrinkage on the paper; is that it?

A. That is the idea. I will state that if there is any distortion of any kind in the map, what ever the scale is, it is true throughout.

Q. That is, the relative distances are accurate?

A. They are accurate, yes sir.

Q. Do you know what the scale of the Government map was?

A. I don't remember.

Q. Do you know whether or not, Mr. Thompson, you photographed some places which had been photographed for the State of Georgia.

A. Yes sir.

Q. Did you have those photographs with you? or copies of them?

1688 A. No sir.

Q. Did you ever see those photographs?

A. No sir.

Q. Where did you get your information?

A. From the testimony of the photographer.

Q. Did you examine his testimony?

A. Yes sir.

Q. Can you say that the numbers of your photographs correspond with the photographs taken by Photographer Adams?

A. I could not, accurately.

Q. Can you by looking at your notes state which of your photographs correspond with those of Mr. Adams?

A. I can some, but I could not all.

Q. I wish you would examine your notes and see.

A. No. 6, View taken from the iron bridge at Cartecay River, at East Ellijay, looking eastward, showing corn fields and river in foreground.

Q. Do you know which exhibit filed with the evidence of Mr. Adams that is?

A. No sir.

Q. Or do your notes show?

A. I did not make notes that way.

Q. Go ahead.

A. No. 5, taken at the same place, looking northward. I will have to state in regard to this that I am doing this from memory, because I did not make notes of it, and it would have to be to the best of my knowledge. No. 90; View at Burnt store near Tennessee and Georgia line looking northeast showing Tennessee Copper Company's plant at the right, D. S. C. & I. Company at left, and Pack Mountain in the distance. No. 96; View on east end of iron bridge over Fightingtown Creek near Madola post office, looking northward, showing bridge in foreground, forest in background.

1689 No. 97. View taken at the same place, at the east end of the iron bridge over Fightingtown Creek looking east, showing cane field. Forest in distance.

No. 138. View near Epworth school, looking northeast. Epworth spring in foreground, also corn and forest with Pack Mountain in the distance.

No. 140. View on Pierceville-Blue Ridge Mountain, looking across William Stepp's place, showing garden and forest. Epworth school in the distance.

That is all I really remember, and that is only from memory.

Q. State whether or not you took a picture of each place that was mentioned as having been photographed by photographer Adams in his testimony.

A. I will have to answer that question that I left that to Mr. Reese to a great extent. I read Mr. Adams' evidence and tried to follow it, but I could not keep track of the camera, plates, and everything, and I left it to his judgment a great deal. These plates are the only ones I remember of.

Q. Your notes do not show that Mr. Adams had photographed those points or not?

A. No sir.

Q. State whether or not you read Mr. Adams' evidence with a good deal of care, that is, the part in which he described those places that he photographed?

A. I read it with a good deal of care, but the country was absolutely new to me, and I could not say that I understood from his testimony just exactly where the places were.

Q. Did you or not endeavor to take the same places as nearly as you could from his description?

A. Yes sir.

Q. You or course were present and saw the places photographed and the character of the trees, foliage, vegetation, etc. Now
1690 state whether or not the conditions there existing at that time are properly represented by your photographs?

A. They are.

Q. You developed the photographs yourself?

A. Yes sir.

Q. Have you or not examined these photographs?

A. Yes sir.

Q. Do those photographs record accurately the color of the forests?

A. Yes sir.

Q. If there is a dead tree in the forest is it shown in the photograph?

A. Yes sir.

Q. If there is a tree in the forest having dead leaves, is that shown in the photograph?

A. Yes sir.

Q. Is or not dead or withered vegetation shown?

A. Yes sir, it would be shown too.

Mr. Hill: I except to all of the evidence of this witness as being original testimony, and not in rebuttal of any thing offered by the Complainant.

Cross-examination.

By Lamar Hill, Esq.:

Q. Mr. Thompson, when was this trip that you made down there?

A. Beginning September third.

Q. Extending up to what time?

A. To the sevenenteenth excepting—we missed one day or some time in there, I don't know what it was—two days.

Q. Where were the first pictures taken on the first days from the third to the sixth.

A. The first picture was made between Copper Hill and Ellijay, as one, two, three, and four.

Q. I mean at what point between Copper Hill and Ellijay;
1691 where did you start that operation?

A. We started at Copper Hill.

Q. And worked south and came around northwest from Ellijay?

A. We will have to dig that out from the photographs, because I did not make a route of just how we proceeded, only by the numbers. We numbered them consecutively, and that would show from the map how we worked it.

Q. You testified that Mr. Reese generally selected the places where you would take these pictures, and that the other places were selected by conference among the members of your party?

A. Yes sir.

Q. You didn't know anything about North Georgia at all, did you?

A. No sir.

Q. You knew nothing about the locations?

A. No sir.

Q. You did not know what places had been testified to by any witnesses for the State as having been photographed?

A. Only by reading the evidence.

Q. I mean from description; you could not tell the geographical location of them?

A. No sir.

Q. And you left all that to Mr. Reese, to show you where that was?

A. Yes sir.

Q. You could not swear that a single picture that you took is taken at any place described by Mr. Adams, the State's photographer, from your own knowledge?

A. There are two or three of them that I could, yes sir; one at the iron bridge near Madola post office, where the description is so plain from his testimony that there is no doubt about it.

1692 Q. And what other one?

A. And the Burnt Store near Tennessee and Georgia State line, being photograph No. 90.

Q. And what other one?

A. I don't remember the others.

Q. Where there any others, Mr. Thompson, that you can think of?

A. Not that I can think of now.

Q. There are three, or two, which?

A. There were two places. One of them the camera did not include or take in enough of, and we swung around and made more of the view.

Q. There are two places where you can swear from your own knowledge are described by Mr. Adams, that you photographed?

A. Yes sir.

The rest you know nothing about whatever, except that Mr. Reese told you or Mr. Quintrell told you or Mr. Holt told you that they were the places described by Mr. Adams.

A. Well, I read the testimony, and I was affected by the reading of the testimony, too.

Q. Didn't you just swear a few minutes ago you could not tell from that testimony and that description the geographical location of those places?

A. Not positively.

Q. And you were governed largely by what these people who had lived there and traveled that country said?

A. Yes sir.

Q. It would range, at what range were most of these photographs taken, what average range?

A. I don't understand your question.

Q. How far was the camera from the subject?

A. Different lengths.

Q. The average distance.

1693 Q. I cannot answer that question. Anywhere from three feet to three miles; the picture includes everything.

Q. What would be the distance of the central point of figure in one of those photographs, from the camera?

A. From what figure? Perhaps you cannot refer to the exact figure.

Q. You cannot tell that?

A. Not generally, no sir.

Q. You are not familiar with North Georgia, the forests and timber and crops, except from this trip, were you.

A. No, sir.

Q. Have you ever been in there before?

A. No sir.

Q. You knew nothing about it?

A. No sir.

Q. Now, did you see anything that looked like dead timber in there at all on all your travels?

A. Nothing more that I would see around in other countries.

Q. Did you see any at all?

A. Dead timber? Yes sir, there is dead timber there.

Q. Will you show me any single photograph of yours that shows any dead timber there?

A. I could be running through them.

Q. Are there any that show any dead timber?

A. Yes sir.

Q. I would like to have you pick them out and show them to us; and there is another question I will ask you in that connection; Did you see any dead leaves through North Georgia?

A. On the trees?

Q. Yes sir.

A. There are pictures that show they are dead; there are several.

Q. What pictures are there that you took that show any dead leaves, or any dead timber?

1694 A. I would have to look through the photographs to find them.

Mr. Hill: We can go on with this examination and you can pick them out when we get thruogh.

The Witness: Al-right.

Q. Did you see any autum- or fall tints on the leaves when you went through there?

A. Nos. 13, 14, 15, and 17, and around there, we saw some.

Q. Do they show in your photographs?

A. Yes sir.

Q. How do you know whether it was the fall tint, or caused by fung-us disease, or by sulphur smoke, or what?

A. I don't know positively.

Q. You don't know anything about that at all? What color red, brown, yellow, or pink, or what color was those leaves?

A. The fall tints come in all the colors that you have mentioned.

Q. Do all colors show up in color photography?

A. Yes sir.

Q. All colors?

A. Yes sir.

Q. Do you not have three primary colors from which the others are arranged?

A. No sir.

Q. But every color, from neutral up through all the colors of the spectrum, show?

A. On these plates, all colors are shown as they are.

Q. How does brown show up, as differentiated from black?

A. It will have red in it.

Q. Suppose it is light brown?

A. It will have less red and less black.

Q. Don't all browns take on the plate according to the red that is in them?

1695 A. No sir.

Q. Isn't red the color on the plate about which the brown colors form?

A. Brown is not only red; it is red and black and white when mixed on a palette.

Q. Suppose it is very light brown; would that show up?

A. It would show red, and less black.

Q. There are certain colors in this scheme of color photography that arrange themselves to form other colors. Is that true?

A. I don't understand your question.

Q. You were speaking of the arrangement of red, white and black to form brown. There — certain colors in color photography which arrange themselves in different manner to form certain other colors?

A. Well, it is not clear to me yet. I will say no. One group of colors won't affect another group of colors in this process.

Q. What I am getting at is this; in this process isn't the film that is over this plate on which the reproduction of the subject was made, isn't that process based upon the arrangement of certain colors in that mixture that is put over there as the film, and which rearrange themselves according to the light and the colors of the spectrum, are there not certain primary colors in this mixture that are put on as a film over this plate?

A. Yes sir.

Q. And do not those primary colors rearrange themselves according to the color that comes through the lens?

A. The image on the plate allows the colors to come through and show.

Q. Are all colors which are shown on the plate exact reproductions from the standpoint of color value?

1696 A. Yes sir.

Q. Of it? Just as in nature?

A. Yes sir.

Q. Will you take that plate and swear that those colors of the trees in the background are the colors of the trees in nature?

A. Yes sir.

Q. That is, that green is the color of the trees?

—. ——.

Q. Did you take any photographs except color photographs?

A. No sir.

Q. Did you take any close up?

A. Yes sir.

Q. To show what?

A. I don't think I made any closer than the group of an acre or so or trees generally in the forest. Of apple trees, we took closer views.

Q. Now, leaving out those fruit trees that you took at short distances, there were no photographs made of single trees?

A. I don't remember any single trees.

Q. Now, Mr. Thompson, you don't mean to take that photograph there and say that you can distinguish discoloration on the leaves and blades of corn stalks and things of that sort? If there were any, you don't mean to say you could distinguish them?

A. I would say if there was any discoloration at the time this was made, it would show in this photograph.

Q. You mean to say that a blade of corn or an ear of corn in that field which is photographed there would show in that photograph the discoloration?

A. Just like it was in the photograph.

Q. Would the camera be close enough to show it?

A. That is a matter of size. It would be there.

Q. Is the reproducing of it to such an extent that you could recognize it in that photograph?

A. I can, yes sir.

1697 Q. You could recognize the discoloration of the fourth stalk from the left end of the fourth row in that photograph, could you?

A. I might not be able to do it with my eye but I could do it with a microscope.

Q. I mean in looking at the photograph as you do ordinarily?

A. You point out the fourth row there that you want, and I will see.

Q. Any corn stalk you pick out.

A. I can say yes, in general, because there are plenty of them there I can see.

Q. Will you look at that photograph and pick out any ear of corn in there that shows silk on it?

A. I am not a farmer.

Q. Will you pick out an ear of corn on there?

A. The shocks are tied up. No, I cannot pick out any corn in that picture.

Q. Will you look in the background and give me the names on the various sorts of trees that are show- there, or distinguish any tree from another.

A. I don't know one tree from another. I am not a forester and I cannot tell.

Q. Could you tell a pine from a popular, or an oak from a chestnut, back there?

A. I can tell a pine from a popular.

Q. In that photograph?

A. I don't know as I could in this photograph, no sir.

Q. That doesn't show the forms of the leaves of the trees does it?

A. In a general way; that is a general picture; it is not a detailed picture; this is a general view.

Q. Are any of your picture-, detail pictures except some of these fruit trees that are heavily laden?

1698 A. You asked me if I made pictures of single trees; I made groups of trees that would show them.

Q. Groups of one acre, I believe you said?

A. Possibly that would show them.

Q. Let us get some of those. Look at this photograph No. 124 and see if you see any brown spots on any of the forest in the background there.

A. No sir, there are none in this picture.

Q. Take this photograph No. 123. I will ask you if, on the right of that photograph there are not brown splotches and brown leaves shown in the trees?

A. Yes sir.

Q. Look at the trees at the left of the photograph and see whether there are any shown in there?

A. No sir.

A. The trees on the left are a greater distance from the camera than the ones on the right are they not?

A. Yes sir.

Q. Going back to this map for a minute, Mr. Thompson, exhibit A to your testimony; how did you fix those locations on the map; are you familiar with the scale, the use of the scale, etc., on maps?

A. Yes sir.

Q. And you fixed them yourself?

A. With Mr. Reese's help.

Q. Did you have a compass with you to determine the direction in which you were taking the photographs?

A. Yes sir.

Q. And did that yourself?

A. Yes sir.

Q. Now, on that bridge down at Ellijay Georgia, where you took one or two photographs; that is down behind a big mountain is it not?

1699 A. I would not call it a big mountain, no sir.

Q. Isn't there a mountain that lies on Ellijay bridge, is there not a mountain facing it, lying between there and the direction of Copperhill and Ducktown?

A. I would call it a hill, I would not call it a mountain.

Q. How high is it, Mr. Thompson?

A. I don't know.

Q. It is a good deal higher that the top of the timber any where in that section?

A. Yes sir.

Q. That other bridge at Madola, which end of the bridge was that where you took that photograph of the group of green maples, of the green maple thicket?

A. On the east end.

Q. The photograph was made from the east end of the Madola bridge, was it?

A. My notes specify, I think. Do you know what number it is?

Q. No sir, I do not.

A. On the east end on the iron bridge.

Q. On the east end; do you know, Mr. Thompson, that Mr. Adams, the photographer for the Complainant in this case, took his photograph from that point, from the west end of the bridge and looking in the opposite direction?

A. Looking in the opposite direction?

Q. Yes sir.

A. If he did, he would not show the trees.

Q. I will get you to look at photograph No. 96. State whether or not there is any discoloration shown on the trees in that photograph.

A. There is some discoloration at the left end.

Q. Isn't it all through there, Mr. Thompson?

A. No sir.

1700 Q. What is that in the top of the tree in the center of the photograph; isn't that brown showing up there?

A. No sir, I would not say that it was.

Q. You don't see any brown in there?

A. There is brown on the left hand, in here, and here and here.

Q. There are several spots of brown in the left side of the photograph?

A. Yes sir. That effect you see there is the effect of the light on the tops of the trees.

Q. Take number 98: State whether or not there is any discoloration running all through the timber in the left part of the photograph at the tops of the trees, showing?

A. No sir, there is no discoloration there.

Q. I will get you to state whether there is any discoloration shown in that photograph through the foliage?

A. Yes sir.

Q. Do you know to what that is due?

A. No sir.

Q. Is that an error in the picture, or does it show the true condition?

A. It shows the true condition.

Q. Now, you said in answer to General Fowler's question that you selected places for taking your photographs that showed the general condition of things in North Georgia that were average views, is that true? That is what you answered.

A. As nearly as possible, yes sir.

Q. How did you know how to select the places that showed and average view, if you had never been in North Georgia?

A. I looked for them.

Q. How could you tell whether it was average or not?

A. Well, I couldn't tell, only by looking, and if I was not satisfied with a view, to keep on making them until I was.

Q. Did you go any places except the ones where you took your photographs?

1701 A. Yes sir.

Q. Just in the immediate neighborhood of the places where you did take the photographs?

A. No sir, not in the immediate places; they were several miles apart.

Q. In some places you did not take any photographs?

A. Yes sir.

Q. Why?

A. We did not see anything that would be any representation, except of what we already had.

Q. I mean in starting out, before you took any, did you not pass by some places with out photographing them?

A. Yes.

Q. Why?

A. To be exact in my answer, we could not photograph every square inch of the country, and we had to select places we thought would give the conditions, and had to use our judgment in the beginning. Of course, as we proceeded, we could be more descriminating.

Q. You took no studies of any other forest trees?

A. No sir.

Q. You took no photographs at close range, of any dead timber?

A. I can't remember.

Q. Will you swear, Mr. Thompson, that there is no more dead timber in any one spot which could have been photographed by you than is shown up in any of your photographs, not only dead timber, but discoloration of the leaves or foliage?

A. I don't understand that myself.

Q. (Question last above read.)

A. I think not.

Q. No more dead timber than is shown on the photograph?

A. No sir.

1702 Redirect examination.

By General Fowler:

Q. Mr. Thompson, how do you inspect these colored photographs? I mean how do you look at them properly? Do you hold them up between you and the light, or — there some kind of an instrument through which you inspect them?

A. They are viewed best through a diascope.

Q. What kind of an instrument is a diascope?

A. A frame, with a mirror that reflects the picture.

Q. Does the light pass through the autochrome plate through which the picture is recorded upon the mirror?

A. Yes sir.

Q. And it is reflected upon the mirror?

A. Yes sir.

Q. And does that give you a correct view of the landscape of which the picture is taken?

A. Yes sir.

Q. That is, the right (side) of the landscape shows right to you?

A. Yes sir.

Q. And the left (side) left?

A. Yes sir. If the autochrome plate is put in the diascope correctly; if not it would be the reverse of that.

Q. State whether or not, if there is any fusion of colors looking through the autoschrome plate, that all disappears when you examine it through the diascope, and does or not the diascope reflect the landscape of colors just exactly as it appears to the natural eye?

A. Yes sir.

Q. Did you notice anything unusual in the appearance of the forest through which you went, for that season of the year?

A. No sir.

Mr. Hill: We except to the question and answer, as the witness has already stated he is not a forester. 1703

Q. Have you or not gone through forests quite frequently?

A. Yes sir.

Recross-examination.

By Mr. Hill:

Q. You don't know what the condition the forests were in in June, July and August?

A. No sir.

Q. You don't know whether the foliage would have been greater at the time you were there than it was if certain conditions had not existed earlier in the season, do you?

A. No sir.

Q. You don't know whether there would have been more or less dead timber?

A. No sir.

Redirect examination.

By General Fowler:

Q. These pictures, as I understand speak for September, when you were there?

A. Yes sir.

Recross-examination.

By Mr. Hill:

Q. You did not go into the crops and examine them; you simply took photographs of them?

A. As nearly as they would let us.

Q. Did you go in and examine for discolorations?

A. Only to make pictures.

Q. Only to make pictures? You did not go into the crops themselves and examine them?

A. No sir.

And further deponent saith not.

J. E. THOMPSON,
By R. S. C. HUTCHINSON,
Commissioner.

1704 Sworn to before me this November 9th, 1914.

R. S. C. HUTCHINSON,
[SEAL.] *Commissioner.*

(No mileage.)

Next witness, G. M. Bentley, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by General Fowler:

Q. Where do you reside, Professor?

A. Knoxville.

Q. How long have you been living in Knoxville?

A. Ten years.

Q. What is your occupation?

A. State Entomologist and Plant Pathologist, and Associate Professor in the University of Tennessee.

Q. How long have you been a professor in the University of Tennessee?

A. In the fall of 1905—there are two classifications, assistant professor and associate. I was made associate in June, and was assistant four years prior to that.

Q. How long have you been Entomologist of the State of Tennessee?

A. As State Entomologist, six years.

Q. Where did you get your education?

A. At Cornell University.

Q. How long did you attend Cornell?

A. Five years.

Q. What particular courses in Cornell did you take?

A. The courses, relating to Batchelor of Sciences and Agriculture, and also Master of Arts.

1705 Q. Did you take any degree in Cornell?

A. Two degrees.

Q. What degrees did you take?

A. B. S. A. and M. A.

Q. In what year did you take your M. A. Degree?

A. In 1901.

Q. State whether or not you have made a special study of diseases of fruit trees?

A. I have not.

Q. To what extent have you been called upon in performing the duties of your position to examine fruit Trees?

A. From the standpoint of insect pests.

Q. Have you not then made special study of insect diseases of fruit trees?

A. Yes sir. In one sense, diseases would not be quite applicable there. Insect troubles. It would not be really from the standpoint of a disease. It would be——

Q. What do you call insect troubles of trees, if it is not a disease, what is it?

A. Well, it would hardly be called a disease; it would be insect affectations, or insect troubles; but disease would have more to do with bacteriological or funga-s affections.

Q. Have you come in contact more or less with San Jose Scale in performing the duties of your position?

A. Yes sir.

Q. For what length of time have you been examining trees affected with San Jose Scale?

A. Fifteen years.

Q. Have you or not often examined trees that were so affected?

A. Yes sir.

Q. Do you know that disease when you see it on an apple tree?

A. Yes sir.

1706 Q. State whether or not there has been submitted to you within the last two or three months, by Mr. Reese or some other person connected with the Ducktown Sulphur, Copper and Iron Company, some cuttings taken from apple trees?

A. Yes sir.

Q. Have you those twigs present?

A. I have.

Q. Describe to the stenographer those specimens submitted to you so the record will show a proper description of them.

A. In number, there are 35; all are apple cuttings excepting one that is cherry. Twenty four of these cuttings I found infested with San Jose Scale.

Q. Did that include the cherry or not?

A. The cherry was uninfested. It is a sour cherry.

Q. To what extent are those twenty-four specimens affected?

A. Three of them are badly infested. Two are highly incrusted with Scale, and show indications of severe injury.

Q. Do you know whether they were affected with any technical plant disease?

A. Yes sir, some of them had the leaf rust, apple leaf rust.

Q. Do you remember about how many of them had leaf rust?

A. Well, I did not examine especially with care along that line.

I dwelt chiefly on the insect side of it, and looking for Scale. Some of the leaves had to be removed. I think there are three or four specimens in there at present with leaf rust upon them.

Q. I wish you would describe what effect Scale has upon apple trees?

Q. At the beginning, you see no indications of trouble whatever, not until four or five years have gone do you see any indication of terminal dying of the limbs.

Q. What is the effect then, upon the tree?

A. The trees die from the outer limbs back, and frequently are absolutely killed. 1707

Q. Do the leaves become brown?

A. Yes, and the tree sheds the leaves early, defoliages early.

Q. During what seasons of the year are trees generally killed by this Scale?

A. That is rather a difficult question to answer. Being weakened by scale, the present of a drouth will cause the dying of trees. It would be during the growing season I can make it that fine.

Q. Are they ever killed when the sap is down?

A. Rarely ever. The Scale at that time is present but the effect is not as serious.

Q. What is the Scale?

A. The Scale is a piercing insect, and sucking insect.

Q. And whereabouts do they reside in the tree?

A. It may be found anywhere, on the trunk, branches, old limbs and young limbs.

Q. Are they on the outside or on the inside of the bark?

A. They rest, of course, on the outside; the mouth parts are thrust through from the outside to the young growing wood. From this region they obtain their food, which is the sap of the tree.

Q. So they live on the sap?

A. Yes sir, they live on the sap.

Q. And are they in large quantities on the tree?

A. When they are highly infested, there are innumerable quantities there.

Q. And they kill the tree by sucking the sap?

A. Yes sir.

Q. How large are they?

A. A full grown one is about one-sixteenth of an inch.

Q. Visible to the eye?

A. Yes sir.

1708 Q. Do you know anything about the orchards in North Georgia, whether or not they are generally infested by the Scale, or not?

A. I don't know.

Q. Do you know of your own knowledge where these cuttings came from, the specimens you have described?

A. I do not, excepting they were brought to my office by ——

Q. Who brought them to your office?

A. Mr. Hensler, assistant to Professor Bain.

Mr. Hill: I object generally to all the testimony of this witness, upon the ground that it is cumulative, original evidence, and not in rebuttal.

Cross-examination.

By Mr. **Hill**:

Q. Professor, how long does it take the San Jose Scale to kill a tree?

A. To kill a peach tree, about three years; an apple tree, four to five years.

Q. Then if you saw an orchard or a tree in apparently a healthy condition on today, say, and tomorrow you saw and smelt sulphur smoke in that orchard, and within a period of three or four days leaves began to turn brown and fall off, the fruit began to fall, you would not attribute that to San Jose Scale, would you?

A. No, sir, the same tree being understood.

Q. The same tree.

A. No, sir.

Q. That could not be due to scale?

A. No, sir. It it was highly infested——

Q. I said a tree or orchard apparently in healthy condition.

A. Oh, yes, al- right.

1709 Q. If scale had been present long enough to have caused the leaves to have begun to turn and the tree to have begun to die, you could tell that and it would not be an apparently healthy tree or orchard, would it?

A. No, sir.

Q. You testified, I believe, that you do not know anything about the conditions in North Georgia, whether the scale is general there or not?

A. Yes, sir.

Q. All you have testified about are these branches which have been handed to you?

A. In regard to this particular case.

Q. You say that some of the leaves were missing from those branches, absent from them?

A. A few, yes. A few. A good many were taken off and examined for scale.

Q. Does the scale affect the leaf as well as the twigs?

A. Oh, yes, sir; yes, sir.

Q. Did you microscopically examine the leaves for cell injury?

A. No, sir.

Q. Or for injury to the cell contents?

A. No, sir.

Q. Or for the condition of the cell contents?

A. No, sir.

Q. The cell contents of a leaf are affected by sulphur dioxide, are they?

A. I could not say.

Q. Are you familiar with smelter injury?

A. No, sir.

Q. Or with the *a*ffect of sulphur dioxide on leaf, leaf cells and cell contents?

A. No, sir.

1710 Q. So you don't know whether these leaves are affected by sulphur dioxide or not, the cell contents of a leaf?

A. I do not.

Q. Were they alive and green when they were brought to you?

A. No, sir, they were dried. Some were in a limp condition, not brittle as they are today, but just partly dried.

Q. Well, will the lowering of the vitality of a tree or plant make it more subject to plant disease, just as the lowering of the vitality of a human being makes it more subject to disease?

A. I have not made a study of that, and I am not prepared to answer.

Q. You are a pathologist?

A. Not especially so.

Q. I understood you to testify that you were a plant pathologist?

A. I am State Entomologist and Plant Pathologist in so far as—that is the official position. Of course we know a great many plant diseases, and our special work has brought those in, but I am not especially prepared to answer as a plant pathologist.

Q. Entomology is the study of plant diseases and insects which attac*h* plants and trees is it not?

A. No, sir.

Q. What is it?

A. A study of insect pests.

Q. The study of insect pests alone?

A. And insects that are beneficial.

Q. You know nothing, then about the physiology of a tree? Plant physiology?

A. I do.

Q. Do you *you* know anything of applied plant pathology?

A. Yes, I do.

1711 Q. Then I understood you to testify a while ago that you knew nothing of the effect of cell contents and resulting sap, etc., in a tree by sulphur dioxide; would that not come under the head of applied pathology?

A. That would be a special case; that is a special case.

Q. Then if you are familiar with applied plant pathology and are an entomologist, I will ask you again if the lowering of the vitality of a plant or tree would not make it more susceptible to a disease or even an attack by some insects?

A. I am not positive of that. I could not say definitely.

Q. Do you know or not that when a tree is killed, insects immediately attac*h* that tree, go into it and go to work?

A. In certain trees, they do, in certain instances.

Q. If the vitality of the tree was lowered to appreciable extent, even though the tree was still alive, would they not be more apt to attack that tree than they would one that was in perfect health and natural vigor?

A. It would depend on the insect, the type of insect.

Q. But it would make it more susceptible generally speaking would it not?

A. I cannot say so. It depends on the insect.

Q. You said that scale was present to a large extent on three of those specimens?

A. Yes, sir.

Q. On the others, it was not so appreciable?

A. Appreciable, yes; appreciable.

Q. I say, not so appreciable?

A. Not so highly infested.

Q. Is leaf rust caused by San Jose Scale?

A. No, sir.

Q. What is leaf rust?

A. A plant disease.

Q. What sort of a plant disease?

A. A plant disease affecting fruit, leaves, and leaf stems.

1712 Q. I mean, what is the source of it?

A. Well, it winters very frequently in developments on cedar trees and cedar apples.

Q. What is it caused by?

A. Fungus, fung-us growth.

Q. What sort of a fung-us growth?

A. Well, I am not prepared to answer.

Q. Then you don't know anything about the leaf rust except its appearance when you see it; I mean, you don't know what causes it?

A. I know the plant diseases that cause it and I know the result of the injury.

Q. How does leaf rust affect the leaf and the structure of the leaf?

A. It causes the leaf to be spotted and frequently colored.

Q. What color?

A. Varying colors. Sometimes yellow, and sometimes brown, according to the different stages, and there is extra growth w-ere this spot is, some additional growth to the leaf.

Q. Now will you show us a leaf on there, Mr. Bently, that is affected by leaf rust?

A. There is one, here; there is an envelope here. There is one leaf that we took off from this. I had it in an envelope. (Envelope produced, and handed to counsel.) Here is another one, if you wish it.

Q. You stated you were not familiar with smelter or sulphur smoke injury?

A. Yes.

Q. Can you distinguish them, the difference between what you call leaf rust, and the effect produced by sulphur dioxide on the leaf?

A. Well, leaf rust is such a distinct disease that while I do not know the nature of this sulphur injury it could not be comparable.

1713 Q. Take the leaf which I hand you, and state what is the matter with it.

A. I do not know.

Q. It seems to be affected, does it not?

A. The color may be due to the dried out condition.

Q. Do you not notice certain brown spots on that leaf?

A. Yes, sir.

Q. Do you know whether or not that is caused by sulphur dioxide attack upon the leaf?

A. I do not know.

Q. You do not know, then, what is the matter with that leaf?

A. No, sir.

Q. There appear brown spots on it; is that true?

A. There is discoloration there, but a tree afflicted with San Jose Scale might have leaves so discolored.

Q. Is that branch there scale infested?

A. No, sir, that is a sour cherry.

Q. That is not scale infested?

A. No, sir.

Q. Take this leaf here on this branch and state what is the trouble with that leaf?

A. I do not know.

Q. That leaf appears discolored does it not?

A. Yes, sir.

Q. Spotted with brown spots?

A. I could not call them spots. There are brown areas there.

Q. There are brown areas there?

A. Yes, sir.

Q. You don't know what causes that?

A. I do not.

Q. I will ask you to file that as exhabit No. 1 to your disposition.

1714 A. I file it as requested.

Exhibit No. 1.

Redirect examination.

By General Fowler:

Q. In regard to this exhibit No. 1 that has just been filed, state whether or not the browning of the leaves as it appears on this exhibit, might be the result of dry weather?

Mr. Hill: I except to the question as being leading, and suggestive of the answer.

A. That would be a question for a pathologist to answer. Such I do not pretend to be.

Q. Is it or not your experience that dry weather will cause leaves on trees to brown?

Mr. Hill: I except to that, as the witness has stated he is unfamiliar with the subject.

Mr. Fowler: He hasn't stated any such thing. Go on.

Mr. HILL: He has just stated it was a question for a pathologist.

Mr. FOWLER: No.

A. Yes.

Mr. HILL: I except to the question, for the further reason that it is leading, and suggestive of the answer.

Q. State further whether or not when a branch of a tree is cut from a trunk and the leaves dry up, do they or not more or less brown?

A. Yes, sir.

Recross-examination.

By Mr. HILL:

Q. When they dry up, they brown more or less uniformly do they not: are not the majority of the leaves on these branches all of them being dead, uniformly discolored?

A. I cannot answer. I cannot say definitely, there are so many things which enter into it.

1715 Q. On the branches which are now before you, all the leaves being dead or dried, isn't the discoloration uniform on each leaf in the majority of the leaves on those branches?

A. I cannot say that they are.

Q. What percentage of them are?

A. I should say nine tenths of them are not uniformly discolored.

Q. Nine tenths of them are not uniformly discolored?

A. Nine tenths of them are not uniformly discolored.

Q. What percentage of them are spotted such as the leaf which you have filed as exhibit number one?

A. I do not find any here just the same. That is a different growth, and the spots are in affected areas. In that, they are affected differently.

Q. What I mean by my question is this: Are not the majority of the leaves on those branches which you hold practically uniform in discoloration, as distinguished from the discoloration on the leaf of exhibit No. 1, which is spotted?

A. It naturally would be. It it a different growth.

Q. It has a different cause for the discoloration?

A. It may not be.

Q. Are not the leaves in the majority of the cases which are before you, discolored from drying up and dying?

A. Yes, either from natural causes or from diseases.

Q. I ask if the majority of them were not discolored from being dead or dried since they have been taken from the trees from natural causes?

A. Yes.

Redirect examination.

By General Fowler:

Q. This exhibit No. 1, I believe you say, is a cherry?
A. Yes, sir.
Q. The other branches you have before you are apples?
1716 A. That is true.
Q. Do you know whether or not, Professor, the discoloration of this cherry is the result of drying up for the lack of sufficient moisture?
A. I do not.

And further deponent saith not.

G. M. BENTLEY,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 9th, 1914.
[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

(No mileage.)

Next witness, J. H. Quintrell, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by General Fowler:

Q. Mr. Quintrell, did you make any cuttings from apple trees in the orchard or either Arnold or Northcutt in Gilmer County, Georgia.
A. Yes, sir.
Q. From which one of the orchards were they taken?
A. Arnold's.
Q. How many twigs did you cut from the trees, do you remember?
A. I could not say the exact amount. We taken as many as I could tote in a big tow sack from probably three of four hundred trees.
1717 Q. What did you do with them?
A. I carried them to the Ducktown Sulphur, Copper and Iron Company's office and turned them over to Mr. Sherman Reese.
Q. From what kind of trees were they taken?
A. Apple trees, and I cut one cherry tree in my armful, and Mr. Holt and another gentleman and the gentleman that was in charge of the orchard, were together.
Q. From what parts of the orchard did you make the cuttings?
A. Well, we set in at the foot of the hill, and we taken them by rows as we went up the mountain, until we got about all we could tote.
Q. Did you cut them from all parts of the orchard?
A. Yes sir, we cut them probably from every other tree.
Q. That is, did you or not cut out infected trees, or did you take them as you came to them?

A. No sir, as far as I was concerned, I did not really know an affected tree from one that was not affected. That is of course, the whole orchard looked about the same to me.

Q. Did you also go through Northcutt's orchard or not?

A. Well, I was in Northcutt's orchard, but I don't think they took any samples of it.

Q. What was its appearance as compared with Arnold's orchard?

A. Well, it was about the same, as far as I could tell.

Mr. Hill: We except to that, as being a conclusion.

Q. Whether or not they were affected by any disease, you did not know?

A. I did not know, sir.

Q. When did you make those cuttings?

A. I cut them on the 18th day of September, 1914.

Q. And on what day did you turn them over to Mr. Reese?

A. On the 21st.

Q. There are a number of cuttings that are before you now; is there any way by which you could identify them?

1718 A. Well, no, I don't know that — is. They look to be very much the same ones that I cut.

Q. But you don't know?

A. I don't know.

Cross-examination.

By Mr. Hill:

Q. You are the same Mr. J. H. Quintrell who testified in Chattanooga in this case?

A. Yes sir.

Q. On original taking of evidence for the defendant?

A. Yes sir.

Q. You say you made cutting from three or four hundred trees?

A. I suppose we did, as far as I could tell.

Q. Where are the rest of those cuttings?

A. I can't tell you. I turned the whole thing over to Mr. Reese.

Q. They are not all that you cut that are before you now?

A. No sir.

Q. This would not be one tenth of them, would it?

A. No sir.

Q. About what percentage of them, would these be?

A. Well, I could not say. I could not begin to say.

Q. It would not be one twentieth, hardly?

A. I don't hardly suppose it would. We had a large tow sack full.

Q. Three or four hundred cuttings you say?

A. I think so.

Q. There are about twenty-four or twenty-five here are there not?

A. There look to be.

Q. You didn't make any cuttings in the Northcutt orchard at all?

1719 A. None at all.

Q. At no other point except in the Arnold orchard?

A. That is all.

And further deponent saith not.

J. H. QUINTRELL,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 9th, 1914.
[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 230.

Next witness, SHERMAN REESE, recalled, for defendant, in rebuttal, having been duly sworn, deposed as follows:

Examined by General FOWLER:

Q. Have you been heretofore examined in this lawsuit?

A. Yes sir.

Q. Where were you examined?

A. In Chattanooga and here in Knoxville.

Q. State whether or not you have been present when all the depositions in this case have been taken?

A. I have.

Q. Have you heard the evidence given by the various witnesses?

A. Practically all of it, yes sir.

Q. Now with reference to the cuttings taken from Arnold's orchard, were you present when those cuttings were made?

A. No sir.

Q. Who delivered them to you?

1720 A. Well I sen*d* Mr. Quintrell and Mr. Holt to make these cuttings and take these samples, and they delivered them to me in the company's office at Isabella.

Q. About how many did they deliver to you?

A. I never counted them, but I divided them into three parts, and one part I sent to the United States Entomologist at Washington City, another part to the State Entomologist at Knoxville, and we have the other part here.

Q. Were they divided as nearly into equal parts as you could?

A. Yes sir.

Q. Do you know any thing about plant diseases yourself?

A. No sir.

Q. Did you undertake to pick out any special ones, to send to either of the gentlemen you have mentioned?

A. No sir.

Q. Did you get a reply from the United States Entomologist?

A. Mr. Renwick, the General Manager of the Ducktown Sulphur, Copper and Iron Company, did.

Q. Do you remember when he got it?

A. No sir, I do not know the date.

Q. Do you remember whether it was too late to put his name in the list of witnesses that was given to the other side?

A. Yes sir, I think so.

Mr. HILL: We except to the answer, as being indefinite and unsafe.

Q. You say you sent another bunch to the entomologist of the State of Tennessee?

A. Yes sir.

Q. Who was it?

A. Mr. Bentley.

1721 Q. Do you recognize the specimens which are now present and which were present when Mr. Bentley testified, as being the ones you sent to him?

A. I do.

Q. To whom did you sent the other package?

A. To the United States Entomologist at Washington City; I do not know what his name is.

Q. The third, what did you do with the third?

A. I have got it here.

Q. You never sent it to anybody?

A. I never sent it to anybody.

Q. You did not have them examined by anybody?

A. No sir, they are here.

Q. Mr. Reese, were you present at Blue Ridge when these depositions were taken?

A. Yes sir.

Q. You were present when the photographs were introduced by Mr. Adams?

A. Yes sir.

Q. Are you acquainted with the various localities about which testimony was there introduced by the State of Georgia?

A. Practically all of them, yes sir.

Q. Had you prior to that time been through many of those localities?

A. A great many of them, yes sir.

Q. Have you traveled over the country around about Epworth?

A. Yes sir.

Q. And Madola?

A. Yes sir.

Q. And on Jacks River?

A. Yes sir.

Q. Had you been through those districts before that testimony was given?

A. I had, at different times.

1722 Q. Now, state whether or not, after that testimony was introduced by the defendants, you made another trip through the vicinities to which that testimony related?

A. I did.

Q. When did you do that?

A. I commenced on the 3rd day of September, 1914, and continued until the 17th of September, 1914, inclusive.

Q. Whom did you have with you, if anyone?

A. Mr. James E. Thompson, of Knoxville, Photographer.

Q. Is he the photographer?

A. Yes sir, and Mr. B. H. Holt.

Q. For what purpose did you make that trip?

A. Well, our purpose was to make colored photographs showing the condition of crops and forests in Fanning County and Gilmer County, in rebuttal to the evidence of the State of Georgia against the Ducktown Sulphur Copper and Iron Company.

Q. Did you hear Mr. Adams testify as to the locations where his photographs were taken?

A. Yes sir.

Q. Did you have a copy of his testimony upon that subject made?

A. Yes sir.

Q. Did you take it along with you?

A. Yes sir.

Q. Did you cover the same territory that was covered by Mr. Adams?

A. As much as I possibly could, the same places. I could not locate them altogether, the very spots where his photographs were taken, for the reason that I had no way of absolutely locating it, but wherever I could I tried to locate and take a photograph on the same ground showing the several same places.

Q. You did not have his photographs along with you?

1723 A. No sir.

Q. They were already filed with the court?

A. Yes sir.

Q. Did you or not read his testimony with care in that respect?

A. I did.

Q. And were the photographs taken as nearly as you could of the same spots?

A. As nearly as possible, yes sir.

Q. Can you recall what photographs taken by Mr. Thompson were of the places that were photographed by Mr. Adams?

A. Yes sir, in part; I do not think I can, altogether.

Q. I wish you would designate, to the extent that you can, those photographs

A. Numbers 90, 91, 92, 93, *93,* 96, 97. There I am positive about 96 and 97 that is, on the iron bridge across Fightingtown Creek, where they made the photograph showing the iron bridge. We made one at the same spot, only we turned our camera and made two. We took one east of that bridge, and one west.

Q. Do you know in what direction they took theirs?

A. Well, I take it that theirs was taken looking west from the fact that it showed the banisters of the iron bridge. We show the same thing, shooting the same way. Then we turned the camera and took one the other way, that is, east; they only show one, and we show two.

Q. What were the conditions existing there?

A. Well, Mr. Thompson, and I believe Mr. Vestal, swore there were some smoke signes there, brown leaves. They said that the leaves in their photograph that showed white were brown, and it was smoke, and out photograph shows for itself the conditions.

Q. Were there indications of dead trees there, as testified to by Mr. Adams?

1724 A. Nothing only old dead trees.

Q. Was there a large number of trees on which the leaves were brown?

A. Nothing at all, except I believe photograph 96 (witness here looked at said photograph) shows the fall tint on the left hand side.

Mr. Hill: I except to the statement that it shows the fall tint on the left hand side of the photograph, as being a conclusion.

A. (Cont'd.) I think that is a discoloration, the autum- tint on the foliage.

Mr. Hill: We except to the statement of the witness that it is discoloration of autum- tints on the foliage, for the reason that he has not qualified as an expert on plant pathology or discoloration.

Q. How long have you been acquainted with the forest, Mr. Reese?

A. Well, I have been acquainted with it all my life.

Q. Where were you raised?

A. I was raised in Ducktown; I have lived there pratically all my life.

Q. How old are you?

A. Fifty years old; going on fifty years old; forty-nine years old.

Q. Have you not been familiar with forests at some distance away from Ducktown?

A. Yes sir.

Q. Do you know what effect fall weather has upon the forests?

A. I think I do, yes sir.

Q. State whether or not forests begin to brown in the fall?

A. They do.

1725 Q. About what time of the year do the forests of North Georgia, both near Ducktown Copper Company and many miles away from it, thirty or forty miles away from it, begin to brown?

A. Well, I think the season would have something to do with that; it usually commenced in September. It might commence a little earlier than that.

Q. Now, what is the first appearance of discoloration of the forests in the fall of the year?

A. The leaves will turn brown, yellow.

Q. Do you remember what varieties of trees are first affected?

A. Well, I think the dogwoods, sourwoods, possibly would be about the first to show discoloration.

Mr. Hill: We except to that answer as being original evidence, and not in rebuttal.

Q. And do the different varieties of trees color at different times?

A. Well, as the fall season will come on, of course, all the foliage on all kinds of timber will show discoloration.

Q. Did you see anything unusual in the forests at that place, that is, where the photograph No. 96 was taken, for that season of the year?

A. Absolutely none. The photograph shows for itself.

Mr. **Hill**: We except to the answer as being a conclusion of the witness.

Q. Now do you recall any other pictures beside the ones you have mentioned, that were taken at places which had been photographed by Mr. Adams?

A. Yes sir.

Q. Please name them.

A. No. 91 was taken on the farm of John Pelfrey, and I think one
of the other photographs was taken there at the same place.
1726 No. 92 was taken at the same place. No. 93 shows the Granny
Marr Mountain where they had quite a number of photographs, three or four, I don't know how many.

Q. With reference to the forest of Granny Marr Mountain, where it was claimed by Mr. Adams there was discoloration, what was the condition of the forest when you were there in September?

A. Well, there was nothing particularly wrong except there might have been the fall tint on the foliage discoloration.

Mr. **Hill**: We except to that answer, as being a conclusion.

Q. Did you observe anything unusual about the appearance of the forest for that season of the year?

A. Not a thing. The photograph shows for itself.

Mr. **Hill**: We except to that, as being a conclusion.

Q. Is the condition that the forest was in at that time, properly represented by photograph No. 93?

A. It is.

Q. Do you remember how many photographs Mr. Adams had of that particular section?

A. No sir, I could not say positively how many; some three or four or five, though.

Mr. **Hill**: We except to the question and the answer, as the record is the best evidence.

Q. Please name other photographs of the places which were photographed by Mr. Adams.

A. 98 is another place where they took photographs at Mr. Couch's farm at Barnes Mountain.

Q. With reference to photograph No. 98, state whether or not it shows the conditions existing there in September when you were there?

A. It does.

Q. Was there any indication whatever of any smoke trouble there?

1727 A. Absolutely none.

Mr. Hill: We except to that answer, as being a conclusion of the witness.

A. (cont'd). I will say further that I think, as well as I can get at it, Mr. Vestal's crowd has taken photographs here where we took this one.

Q. What information did you have with reference to the photographing of that vicinity?

A. Well, I did this the very best I could. I read Mr. Adams' notes, his evidence, and went as nearly as possible to the identical places and tried as nearly as I could to take the pictures on the same ground.

Q. And that photograph there was taken for the purpose of duplicating as nearly as possible the place where the State of Georgia had taken?

A. Yes, sir.

Q. Did you have any other points photographed which had been photographed by Mr. Adams?

A. Yes sir, 99, showing meadow in the foreground and Barnes Mountain in the background, the same place showing Barnes Mountain where the Vestal crowd took views claiming smoke damage.

Q. How far is the place photographed in this picture from the point represented in No. 98; how far were those two places apart?

A. About a mile, I judge; possibly three quarters of a mile.

Q. Both of them were on Barnes Mountain?

A. Both of them were on Barnes Mountain.

Q. Was there any sign of smoke injury around or near that mountain?

A. I don't think so. The picture answers for itself.

Mr. Hill: We except to that as being a conclusion, indefinite and unsafe.

1728 Q. How many pictures did you take on Barnes Mountain, about how many?

A. Five, I think.

Q. Go ahead and name the others that you took of the places which had been photographed there.

A. No. 100.

Q. Where was No. 100 taken?

A. Looking through toward Barnes Gap, on Barnes Mountain, showing green house in the foreground and corn field and quantity of trees killed by girdling in the center of the picture.

Mr. Hill: We except to the statement regarding trees killed by *gilding* at the left of the photograph, for the reason that it is a conclusion of the witness.

Q. Had Mr. Adams photographed these places, or could you tell?

A. Well, as nearly as I could tell, he took pictures on Barnes Mountain there.

Q. This photograph shows a number of dead trees, did you examine those trees?

A. Well, I could see them, yes sir.

Q. Did you see them?

A. Yes sir.

Q. Do you know whether or not they had been girdled?

A. Well, yes, they showed to be killed by an axe-girdle for the purpose of cultivation.

Q. Do you mean cleared the ground?

A. Clearing the ground, yes sir.

Q. Did you see any evidences of smoke damage *ni* that vicinity?

A. Not a bit, no sir.

Mr. Hill: We except to the statement, as being a conclusion.

Q. Name other photographs taken where Mr. Adams had taken photographs.

1729 A. Here is another one, No. 104, which was taken one quarter of a mile north of Higdon's Store, where the Vestal Crowd took a photograph which is filed in the suit of the State of Georgia against the Ducktown Sulphur, Copper and Iron C*p*mpany, looking west towards Riddick Mountain.

Q. Does that photograph correctly represent the situation when you were there?

A. It does.

Q. Did you see any effects of smoke injury there?

A. No sir.

Mr. Hill: We except to the answer, as being a conclusion of the witness.

A. (cont'd). The photograph shows for itself.

Q. I see a number of dead trees represented in this photograph. How long have they been?

A. My notes here show some very old dead trees, which have been dead for many years, also a few trees with yellow leaves which apparently had died from drouth.

Mr. Hill: We except to all of the foregoing answer as being a conclusion of the witness.

Q. Did you make notes when you were on the ground?

A. I did.

Q. Were the notes correctly made?

A. They were.

Mr. Hill: I except to that question as being leading, and to the answer as being immaterial and irrelevant, and having no bearing on the issues in the case.

Q. Did you notice these leaves, these trees which had dead leaves?

A. Yes sir.

Q. Are you familiar with smoke damage?

A. I am.

Q. Have you been familiar with it right around Ducktown
1730 ever sinve the furnace has been running?

A. I have been there all my life; I have been with the company twenty-three years.

Q. Did those trees there containing dead leaves, do those trees present the appearance of having been injured by smoke?

A. They do not.

Q. Do you know as a matter of fact that drouth will kill trees?

A. It will.

Q. Did or nor those trees have the appearance of having been killed by drouth?

A. They did.

Mr. Hill: We except to that as being a conclusion.

Q. How far is this place from the Tennessee Copper Company?

A. Five or six miles.

Q. How far is it from of the Ducktown furnace?

A. Three miles or more; three and one half miles. Nine or ten miles, betwixt eight and nine miles, I will say.

Q. Have you or not seen trees with dead leaves upon them in forests many miles, fifty or sixty or seventy-five miles away from Ducktown?

A. Yes sir.

Mr. Hill: We except to that as original evidence, and not in rebuttal of anything introduced by the state.

Q. Did you take any other photographs than those you have mentioned taken at the same place where Mr. Adams took photographs?

A. No. 105 was taken at the same place, looking Southwest, showing Flat Top Mountain.

Q. You say this is at the same place where 104 was taken except looking in a different direction?

A. Yes sir.

Q. Do you see any evidences of smoke injury there?
1731 A. No sir.

Mr. Hill: We except to that as being a conclusion.

Q. I notice that there is a dead tree about the center of the photograph. Do you know what caused the death of that tree?

A. Well, I was not to it, but I would judge it was drouth or lightning, and not smoke, I would feel perfectly safe in saying that.

Mr. Hill: We except to that answer as being a conclusion.

A. (cont'd). I feel safe in saying it is not smoke.

Q. Have you any other photographs that were taken of the places which Adams had photographed?

A. On the road from Blue Ridge to Ducktown we took a number; I could not locate him along there, only we took a number all the way from Blue Ridge to Ducktown, and then have a number taken at Epworth.

Q. How many did you take around Epworth?

A. We took eight or ten.

Q. Did you hear Mr. Vestal's testimony given?

A. I did.

Q. Did you hear the testimony of the other witnesses for the Complainant who testified with reference to Epworth?

A. Yes sir.

Q. State what vicinities around Epworth you photographed: that is, with reference to the vicinities testified to by Mr. Vestal and these other people.

A. We took photographs all the way along the route from Blue Ridge to Epworth, and from Epworth to Madola and Madola mine—No. 20 Mine, and Barnes Mountain.

Q. Were they sections with reference to which testimony was given by Mr. Vestal and other witnesses for the State of Georgia?

A. Yes sir.

1732 Q. In taking those photographs, did you pick out particularly favorable spots, or do they show the conditions that actually existed there in that vicinity?

A. They show the actual conditions as you look at this photograph.

Mr. Hill: We except to the above answer as being a conclusion.

Q. Did you take photographs of those places which had been less affected, or those which had been most affected; how was that?

A. We tried to get a representation of the true condition of the country every where we went.

Q. Is that true of the whole trip?

A. That is true of the whole trip, yes sir.

Q. Do or not these photographs which were taken around Epworth show the true conditions of that vicinity with reference to the other vicinities where photographs were taken?

A. Yes sir.

Mr. Hill: We except to the last two questions and answers as being a conclusion of the witness.

(The further taking of depositions was here adjourned until 1:30 o'clock p. m., the same day, at which time resumed pursuant to adjournment.)

Continuation of direct examination of Sherman Reese.

By General Fowler:

Q. Do you remember whether you have named all the photographs of places that Mr. Adams claimed to have photographed, of have named them as far as you can recall?

A. Well, practically so; possibly not every one, but practically all.

Q. From the description in his testimony, could you exactly locate some of them?

1733 A: No sir.

Q. Did you or not photpgraph every place that you could locate with any degree of certainty?

A. Yes sir.

Mr. Hill: I except to that as being a conclusion of the witness.

Q. Now, in your travels on the trip, Mr. Reese, did you or not hunt out the sections of North Georgia about which testomony had been introduced by the State?
A. I did.

Mr. Hill: We except to the question as leading.

Q. Was that the only trip you made through North Georgia?
A. No sir.
Q. Since the testimony was given by the State?
A. No sir.
Q. What other trips did you make?
A. Well, Before we took the photographs, I made two trips, I haven't got the dates, but the latter part of August of this year up until the time we went to making the photographs, practically all the time, I was in North Georgia.
Q. What were you doing at that time?
A. Well, I was traveling for the purpose of getting evidence up in this case.
Q. And talking to the citizens in different sections?
A. Yes sir.
Q. State whether or not, in selecting witnesses, you have reference, or had reference to the territory about which evidence had been given by the State of Georgia.
A. I did.

Mr. Hill: We except to that question as being leading and to the answer as being a conclusion.

Q. Have you examined the notes prepared by Mr. Thompson?
A. I have.
Q. With reference to the photographs taken by him?
1734 A. Yes sir.
Q. Are those notes correct, or not?
A. Yes sir.
Q. Where you with Mr. Thompson when all of these photographs were taken?
A. All except one day.
Q. Were you on Turniptown Mountain at any time?
A. Yes sir.
Q. Since they have been taking proof for the State?
A. Yes sir.
Q. Have you been on Bush Head?
A. Yes sir.
Q. And on Flat Top?
A. Not on this trip, no sir.
Q. Have you at any time since the testimony was taken by the State, been on Flat Top?
A. Not on the Mountain itself, no sir.
Q. Have you been near Flat Top?

A. Yes sir.
Q. Did you examine the forests on Bush Head Mountain, and Turniptown Mountain?
A. Yes sir.
Q. When did you make that examination?
A. Well, every trip I was through that country I saw it, which would be the months of August, September, October—on various different trips.
Q. Did you observe the forests to see whether or not they were affected by sulphur smoke?
A. I did.
Q. What condition did you find?
A. Good.

Mr. Hill: I except to the answer as being a conclusion of the witness. He can state what the condition of the forest was, in detail.

1735 Q. Did you see any smoke injury at all in the forest in those mountains?
A. No sir.

Mr. Hill: We except to that as being a conclusion of the witness.

Q. How was it aroun*f* Flat Top Mountain, the places where you —?
A. Do you mean the conditions?
Q. Yes.
A. Good.
Q. Was there any evidence of smoke injury?
A. Not a bit.

Mr. Hill: I except to both those questions and the answers as conclusions.

Q. Were you in Cartecay Valley?
A. I was.
Q. Was that since evidence was taken by the State of Georgia?
A. Yes sir.
Q. Was there any smoke injury in there?
A. None at all.

Mr. Hill: I except to that answer, as a conclusion.

Q. Have you been around Ellijay and Ellijay Valley?
A. I have.
Q. Did you make observations to see whether or not there was any smoke injury?
A. I did.
Q. Was that since the evidence was taken at Blue Ridge?
A. Yes sir.
Q. What condition did you find there?
A. Good.

Mr. Hill: I except to that evidence as a conclusion.

Q. Did you see any evidence of smoke injury in those sections?

1736 A. I did not.

Mr. Hill: I except to that answer, as being a conclusion.

Q. Did you see any evidence of smoke injury around Epworth?

A. Yes, I saw on the 8th of June Professor Bain and myself were taking photographs in this case, for the direct evidence in this case, and on the 8th and 9th of June there was some signs around Epworth.

Q. I am talking about since the evidence was taken by the State of Georgia at Blue Ridge.

A. Well, no; I take it I did see a little smoke sign betwixt Higdon's Store and Epworth, south of Epworth, but I take it, and my judgment is, it was the same smoke damage that occur-ed on the 8th and 9th of June.

Mr. Hill: I except to this answer as incompetent, unsafe and a conclusion of the witness.

Q. Over how large a territory did those appearance extend?

A. Not very much, no sir.

Q. How many miles?

A. Well, I think it must have reached a couple of miles beyond Epworth towards Higdon's Store.

Q. Have you been over to Madola since September 1?

A. Yes sir.

Q. Did you see any signs of smoke injury in that vicinity?

A. No sir.

Mr. Hill: I except to that as a conclusion.

Q. Have you been on Jacks River?

A. Since this case——

Q. Yes.

A. No sir.

Q. Have you been around Mineral Bluff?

A. Yes sir.

1737 Q. Did you examine in that vicinity?

A. Yes sir.

Q. Have you seen any evidence of smoke injury in there since September 1st?

A. No sir.

Mr. Hill: I except to that as calling for a conclusion of the witness.

Q. Mr. Reese, have you examined the photograph of the Geological Survey of a portion of North Georgia made by Mr. Thompson and filed by him as exhibit A to his deposition?

A. Yes sir.

Q. Have you examined that part of the map which indicates the territory traveled over by you and Mr. Thompson?

A. Yes sir.

Q. Is that correctly represented on the map?
A. It is.
Q. Have you also examined the points which purport to indicate where the pictures were taken?
A. Yes sir.
Q. Are they properly represented on the map?
A. They are.
Q. In your travels, were you on any part of Mr. Shippen's lands the Shippen Lumber Company's lands?
A. Yes sir.
Q. When were you upon those lands?
A. Well, I could not give the number of the lots. I went and asked Mr. Frank Shippen for leave to go in his inclosure at his home and him and Mr. Ellis, both their enclosures, and take photographs, and offered to have him direct the photographs.

Mr. Hill: We except to the conversation, as not between the parties to the suit.

A. (cont'd) and he denied me the privilege of going in; and I went then on the L. & N. Railroad and took four, or five 1738 or six photographs over there of his residence and the enclosures around his place.

Mr. Hill: We except to the statement that Mr. Frank Shippen denied the witness the privilege of entering his premises, on the ground that it is hearsay.

Q. Did you go into the enclosure, upon the Shippen lands?
A. No sir. Well, I will say in taking these photographs on the 5th day of September, that I had Mr. Holt as a guide who knew the country. He took me through what I then knew as the Holt farm, and Mr. Shippen had me arrested for going through the enclosures.

Mr. Hill: We except to that answer as being immaterial and irrelevant.

Q. Which one of the Shippens had you arrested?
A. Frank E. Shippen.
Q. Did he have anybody arrested but you?
A. Yes sir, he had Mr. Thompson and Mr. Holt and Mr. Quintrell and Mr. Traver, the Chauffe-r running the autimobile.

Mr. Hill: We except to this answer as immaterial and irrelevant and not in rebuttal.

Q. Why did he have you arrested?
A. Well, the charge in the warrant was misdemeanor.

General Drake: I except to that, for the reason that the warrant would be the best evidence.

Q. What did he have done with you, taken before a justice of the peace?
A. He had me taken before a justice of the peace and he bound

me to appear before the Superior Court of Gilmer County, and they got an indictment and tried me before the court.

Mr. **Hill**: We except to all that evidence as being immaterial and irrelevant, it not being the best evidence of the record. The record of the Court is the best evidence and also as not being in rebuttal of anything introduced by the State.

1739 Q. What was the result?

A. The result was they found me guilty on one charge, the bill of indictment contained three charges, and the jury found me guilty on one charge.

Q. What was the charge on which they found you guilty?

A. Really I cannot tell you.

Mr. **Hill**: We except to all that evidence, as being immaterial irrelevant, and not the best evidence; and for the further reason that it is not in rebuttal of anything offered by the State of Georgia.

Q. Were you inside of Mr. Shippen's enclosure at that time?

A. The land seemed to belong to a marble company. It is a curious name; I don't remember what it is. I suppose the Shippen fellows own stock in that company.

Mr. **Hill**: We except to the answer as being indefinite, uncertain, not being the best evidence; the ownership of stock being in writing; and for the further reason that it is not in rebuttal of any evidence offered by the State.

Q. Did you ask the Mr. Shippen for the privilege of going through their forest?

A. I did.

Mr. **Hill**: We except to that as being a conversation between parties not parties to this case.

Q. Which one of them did you ask?

A. Mr. Frank Shippen.

Mr. **Hill**: We except to that answer for the same reason.

Q. What was his reply?

A. He said, wait a minute and let me see my brother.

Q. Was that Will?

A. That was Will Shippen. He was gone about ten or fifteen minutes, ans came back and said, "no, I will not allow you to go into my enclosures and take any photographs and if you go on my wild lands, I will have you arrested."

1740 Mr. **Hill**: I except to that as being hearsay, as being immaterial and irrelevant, as a conversation between parties who are not parties to this case, and as being not in rebuttal of any evidence offered by the State.

Q. When was it that you had that conversation?

A. On the tenth day of September 1914.

Mr. **Hill**: We except to that, for reasons stated above.

Q. Before or after he had you arrested?

A. After he had me arrested.

Mr. Hill: I except to that, for the same reason.

Cross-examination.

By General Drake:

Q. You say that these pictures are a true representation of the points at which they were taken?

A. Yes sir.

Q. You mean by that, they are true to nature?

A. I think so, yes sir.

Q. I wish you would look at that picture in the case before you, and tell me where that picture was taken, and tell me what number it is. It is No. 100, is it not?

A. Yes sir. This was taken on the north side of Barnes' Mountain, looking toward Barnes Gap. It was taken by Mr. Thompson, the photographer.

Q. The same Mr. Thompson who has testified in rebuttal in this case?

A. Yes sir.

Q. That is a true representation of that locality?

A. Yes sir.

Q. Did you see a blue fence rail in a fence?

A. A blue fence rail?

Q. Yes, a blue fence rail.

A. I never did.

Q. You see an old worm fence there in that picture, do you not; did you ever see a blue fence rail in a fence out in the woods?

1741 A. A blue fence rail?

Q. A Blue one.

A. I don't know what you mean.

Q. Did you ever see a blue fence rail in a fence down there *ehwn* you were looking at it that day?

A. I don't know that I did, or did not.

Q. Don't you know that that picture shows every rail in that fence as blue, sky blue?

A. What is the matter with you?

Q. Please look and see if those rails aren't blue in that picture?

A. Well, no, I don't think they are blue.

Q. What color are they, please sir?

A. I think the picture was taken in the late evening, almost sundown, when, in fact, we had to hurry.

General Drake: I object to that answer, for the reason that it is not responsive to the question

A. (Cont'd) I am telling the truth about it.

Q. I know it, but I want you to answer the question, please sir.

A. I am going to answer it exactly to suit myself, Mr. Drake.

Q. Answer the question. I insi-t that you will not answer it to suit yourself. I insist on you answering the question.

A. It is the color of the fence rail, is all I can tell you.

Q. Do you swear that is the natural color of those fence rails?

A. I suppose it is.

Q. I don't want you to suppose, Mr. Reese. Please state if it is.

A. Yes sir.

1742 Q. A true representation of it?

A. Yes sir.

Q. What color does that appear to your eye to be from that photograph?

A. There is a different angle of the light that you may look at it, General Drake.

Q. Please do not answer about the angle of the light. Please state what color that appears to you, on looking at picture No. 100.

A. You can get two or three colors on it owing to the light.

Q. What color does it appear to be to you, looking at it at any light, then, if you want to put it that way?

A. Well, I don't know what color you would call—natural—just a fence rail.

Q. You haven't the gift of language sufficient to describe the color that that rail appears to you?

A. At one angle of the light you can make it look blue, yes.

Q. That is exactly what I want you to tell me, how it appears to look to you in that picture.

A. Yes, it does, one way of looking at it, it is blue.

Q. Tell me another way you can look at it.

A. It has a grayish look.

Q Tell me another way it may appear to you?

A. That is all.

Q. Now you started to speak a while ago about a picture being taken very late in the afternoon. I will ask you if the reflection of the light on the foliage at different times of the day will not make a picture appear differently, will it not make it really appear a different scene?

A. I think so, yes sir.

Q. Then you mean by that that the same view will not appear the same, at different times on the same day?

1743 A. Well, I am not a photographer. I do not want to go into that too deep.

Q. I am not asking you that. I am asking you from your observation if that is not true.

A. Well, I think that would be true, yes.

Q. Getting back to that irrelevant matter about your having been arrested; I will ask you if a jury of twelve men in Gilmer County did not pass on that issue and find you guilty of trespass, on malicious mischief, or misdemeanor, what ever you were charged with?

A. Yes sir.

Q. I will ask you what the judge fined you?

A. One hundred dollars.

Q. You went out there in an automobile and drove through a corn field and broke down the corn promiscuously?

A. No sir.

Q. Did you not go right square through a corn field?

A. Yes sir; not through a cornfield.

Q. What did you go through?

A. We went through a field, and there were a few rows of corn out in the road that we traveled.

Q. Did you break down any corn?

A. I don't think so.

Q. Was it not enclosed land?

A. Yes sir.

Q. There was no road there?

A. Yes sir.

Q. Did the State not prove in that case that you drove through the corn field and broke down the corn?

A. They swore that, but it was not so.

Q. How many men testified against you?

A. Two, I think, on that question.

Q. All those men swore lies? As you have expressed it here?

1744 A. If they said that I *tire* down the corn, they did.

Q. You just swore it, didn't you; you just said a little while ago that they swore that on you, didn't you?

A. Yes sir.

(Cross-examination continued by Mr. Hill:)

Q. Mr. Reese, you went out with Mr. Quintrell and Mr. Thompson, I believe, to take some photographs after the State's evidence closed in this case?

A. I had Mr. Quintrell with me part of the time.

Q. He was in the employ of the Copper Company for the purpose of this case?

A. Part of the time he was with me.

Q. And at the time he cut these branches on the orchard, he cut them at your request and while he was in the employ of the Ducktown, Sulphur, Copper and Iron Company?

A. Yes sir.

Q. You did not take any photographs except color photographs?

A. No sir.

Q. You stated, I believe, that Nos. 96 and 97 were the only two photographs that you could be positive about that were taken at the points testified to by Mr. Adams, at which his photographs were taken?

A. That is all I could be absolutely positive about.

Q. You knew as a matter of fact, did you not, that you got a photograph, that you have a photograph here taken at Pack's house, while Mr. Adams never introduced any photograph of the Pack house?

A. I could not say that Mr. Adams took a photograph there.

Q. No, but I say you identified one as taken at Pack's House?
A. Well, I was speaking of Barnes Mountain there.

1745 Q. That was taken at Pack's house, showing Pack's house and the mountain, photograph No. 100?

A. No, I did not say Mr. Adams had made a picture, a photograph, of that.

Q. No, you didn't say that. I said you identified one as being taken there.

A. Yes sir.

Q. You don't say, now, and you don't know, that Mr. Adams ever took a photograph from that point?

A. No sir, no more than he purported to take Barnes Mountain.

Q. You don't mean to say that was taken from the same point at which he took his picture?

A. No sir.

Q. You don't mean that any other photographs of Barnes Mountain were taken at points from which Mr. Adams swore he took photographs?

A. Well, now, let me see, Mr. Thompson, and let's get the photograph.

Q. Photograph No. 89, at Couch's?

A. Yes. This photograph is one the north side of Barnes Mountain. There is No. 98. And then we made two, either two or three, from the south side, looking north on Barnes Mountain.

Q. But I say, photograph No. 89, you don't mean to say was taken from the point from which Mr. Adams took his photograph?

A. No sir, I do not mean to say that.

Q. And there are no others that you can identify positively that were taken from the same point as Mr. Adams?

A. No sir. I would not be positive as to the identical point.

Mr. Hill: I move to rule out all of the colored photographs introduced by the defense except photographs 96 and 97 as being not in rebuttal of anything offered by the State, and being immaterial, and irrelevant.

1746 Q. Now at the time that Mr. Quintrell, you and Mr. Thompson, went out, you say Mr. Quintrell was with you. Mr. Thompson was employed by the Company to take these photographs under your direction?

A. Yes sir.

Q. You directed him where to go, you being familiar with the country?

A. Well, yes, I was with him, but still I did not direct where efery photograph should be taken.

Q. Had you had general charge of the party?

A. I had.

Q. He was busy with his camera, plates, etc.

A. Yes sir.

Q. These pictures were taken in September, Mr. Reese?

A. Yes sir.

Q. There had not been any frost then, had there?

A. No sir.

Q. You say, I believe, that you have lived around forests and been through them all your life?

A. Yes sir.

Q. You know it to be a fact that when the autum- tints begin on forest leaves, it affects them uniformly all the same species of tree begins to turn?

A. Every species.

Q. Are the oaks begin to turn about the same time, and all the chestnuts begin to turn about the same time and they turn uniformly?

A. No, I cannot say that, Mr. Hill.

Q. Do you mean to swear that you find an isolated chestnut tree, that you found one over here some place with all the leaves brown or red, and all the other chestnuts in the vicinity alive and green, without the autum- tint?

A. It might be so of certain trees, some might turn more quickly.

1747 Q. I am speaking of trees that are all of the same family.

A. I cannot say they would all turn.

Q. Speaking generally though all the chestnuts begin to turn about the same time, if you look at a chestnut growing, all the leaves will be practically the same color at a certain time of the year?

A. Well, I think that would depend on the health of the tree and the age of the tree.

Q. Take a grove of chestnuts generally speaking, won't the average color of that chestnut grove be about the same?

A. In a practical, way, yes.

Q. You will not find one chestnut over here perfectly red and another one 150 yards away which was gold, and another one where all the leaves were off, and another one over here with all the leaves perfectly green, all being chestnut trees?

A. I don't know how to answer that question.

Q. I will state it again. The first question is, generally speaking, isn't a forest affected uniformly by autum-?

A. Well, yes, in a way that is true.

Q. How is it not true

A. As I stated on direct examination the dogwood and sourwood possibly show fall tint discoloration quicker than the oaks.

Q. Did you see any oaks at all that had any fall tint or what you took to be fall tint?

A. Yes sir, the fall tint was coming pretty generally.

Q. On the oaks, or everything?

A. Yes sir, more or less.

Q. Look at photograph No. 96, at the small red spot to the left of the photograph, and tell me what sort of a tree that is?

A. That is a sourwood.

Q. Are there any other sourwoods in that picture?

A. Yes sir, two of them.

1748 Q. Do they show the same color?

A. Yes.

Q. To the same degree?

A. Practically so, yes.

Q. Do you find any other discolorations in the photograph?

A. No sir.

Q. Look at the trees in the center of the photograph. Don't you see brown spots all over those leaves?

A. Well, there maybe a little discoloration right in the center, by the dead tree there.

Q. On all those dead trees in the center, don't you see discoloration on the leaves.

A. No sir.

Q. What are those brown spots in there?

A. I don't see any brown spots.

Q. What is the tree just a little to the left and an inch and a half or two inches above the red spot that you identify as a sourwood?

A. I think that is fall discoloration.

Q. What sort of a tree is that?

A. Well, I don't know.

Q. What sort of a tree is that?

A. I judge it is some sort of an oak.

Q. Are there any other oaks in that photograph?

A. Yes.

Q. Do they show the same color?

A. No sir.

Q. In photograph No. 99, which you identify as showing part of Barnes Mountain and fall tint near the center of the picture, I will get you to state whether there are several trees showing discoloration of leaves?

A. Yes sir.

Q. Are there any anywhere else in the photograph?

1749 A. None except about three or four in the center. That is on Barnes Mountain.

Q. I hand you photograph No. 6, and ask you to state whether you ever saw a brown river, part brown and part blue?

A. A What?

Q. A river that was part brown and part blue?

A. The river was muddy.

Q. Was not all of it muddy?

A. Well, I suppose it might be the reflection of the blue sky in the water.

Q. Would a blue sky reflect blue, in a muddy river, part blue and part brown?

A. I have answered the question to suit myself on that point.

Q. You will not answer it to suit me, then?

A. No sir. I think that is what it is.

Q. Photograph No. 99, of Barnes Mountain; where was that taken from?

A. It was taken about half a mile west of Pack's house.

Q. Don't you know there was not photographs introduced by the State, taken from that point?

A. Well, no, I don't know that.

Q. Photograph No. 100, the one with the sky-blue trees, in it: You testified that all those trees were killed by girdling. Did you examine every tree there?

A. No sir. They all seem to be, though.

Q. That is just an opinion of yours?

A. Yes sir, that is my opinion.

Q. All that discoloration was caused by girdling, was it?

A. What kind of discoloration?

Q. Of the leaves there.

A. No sir.

Q. None in the picture?

1750 A. Practically none, no.

Q. What there is, was it caused by girdling?

A. No.

Q. What was that caused by?

A. What do you mean?

Q. That discoloration.

A. There is practically no discoloration in this picture?

Q. But what there is, was caused by girdling, was it?

A. There is none.

Q. There isn't any, at all?

A. Practically none, no.

Q. What do you mean; that there is none or practically none?

A. Well, now, point out to me where it is, Mr. Hill.

Q. Right here in the right, here, right here, and right here, and right here, and right here, (Indicating).

A. Well, that may be a little discoloration caused by fall tint.

Q. It does not extend over the whole photograph?

A. Practically none.

Q. It does not extend over the whole photograph, does it?

A. No sir.

Q. And you won't answer the way I want it?

A. Well, I am swearing to it.

Q. In No. 134, tell me what caused the discoloration of that, those pease?

A. Well, there is practically no discoloration on the pease.

Q. Practically none?

A. Practically none, no.

Q. What there is, what has caused it?

A. I suppose they would be ripening.

Q. That is all you think it is?

A. Yes sir.

1751 Q. Photograph No. 104, you attributed the killing of those trees to lightning. Did you go up and examine those trees?

A. No sir.

Q. Did you get any nearer them than the camera?

A. No sir.

Q. How do you know what they were killed by?

A. That is my best judgment.

Q. That is the way you testified all through, that it is your judgment, is it?

A. In this it is.

Q. What about this patch of corn in Photograph No. 79, What caused that discoloration?

A. Well, now, The cabbage is all right there is no discoloration on that.

Q. You see no white edges at all?

A. Not a bit.

Q. No white edges at all.

A. No. They are green.

Q. Don't they show white in the photograph?

A. No, they look perfectly healthy.

Q. Don't they show white in the photograph; don't they look white there?

A. No, they look healthy and vigorous.

Q. Do they not show white in color, in that photograph?

A. It is a blue tint.

Q. It is a white tint, is it not, as a matter of fact?

A. No, it is a blue tint.

Q. What about the corn over there?

A. There is no corn here.

Q. You cannot say without reference to your noted, whether it is corn or beans shown in the photograph which you have, just back of the cabbage and behind the fence; is that true or not?

A. I do not think it is.

Q. Can you tell without reference to your notes?

A. I was looking at the thing right when the photograph was made.

1752 Q. Can you tell without reference to your notes, whether that is corn or beans?

A. It is corn and beans.

Q. You referred to your notes, did you not?

A. No sir, I have not yet; I am going to.

Q. But you could not tell whether it was corn or beans?

A. I did do it.

Q. What is the matter with the corn back there, those blades?

A. I don't think there is anything wrong with it.

Q. You think there is no discoloration there at all?

A. Well, it is fodder pulling time, and I guess it is turning.

Q. If corn is turning ripe, doesn't it begin turning at the end of the blade rather than at the base of the blade; don't you know that?

A. It would be both ways, I should think.

Q. Don't you know as a practical man, leaving out all reference to this case, that corn starts turning at the tip of the blade?

A. Well, it could commence turning all over the blade.

Q. Does it not begin at the tip?

A. Well, practically speaking, of course, yes.

Q. In that photograph, is it not already beginning at the base?

A. No, sir, I could not say that it is.

Q. Most of it?

A. No.

Q. Look at this one, No. 80. See if all that corn isn't beginning to turn at the base of the blade?

A. No sir.

Q. What causes the discoloration?

A. Well, it is the season of the year for fodder to commence to turn ripe.

1753 Q. It is the season of the year for fodder to begin turning ripe, it is the season of the year for peas to ripen, and it is the season of the year for leaves to ripen, and it is the season of the year for leaves to fall off the trees; that is true, is it not?

A. Yes.

Q. And you cannot tell smoke damage as well in this time of year as you can in July and August?

A. Yes.

Q. How can you, when there is fall discoloration?

A. Before frost.

Q. I am talking about in September, you attributed all that to autum- tint, all this discoloration in these photographs?

A. I want to put my answer strong now, that there is absolutely no smoke damage in that country.

Q. None at all?

A. Now you have got it.

Q. Never has been.

A. No, that is my judgment, that there never has been.

Q. Since 1905?

A. In that part of the country, I do not believe there ever has been.

Q. And you have always sworn that? Is that not true?

A. I have always sworn what?

Q. That there has never been any damage there since 1905 in that part of the country?

A. I do not believe there has ever been any there at any time in that part of the country.

Q. Coming back to my former question: Those pictures that you have identified and introduced here, or that have been introduced, you have sworn that that discoloration in there was attributa-l- to fall tints?

A. Yes sir.

Q. You have sworn also that you did not get nearer to the trees than the camera?

1754 A. No.

Q. That is true, is it not?

A. That is true?

Q. Now, you are not a plant pathologist, and you are not a forester?

A. No sir.

Q. Now, I will ask you if there was discoloration from smoke injury or smelter injury, you being at the camera and no nearer the tree and in a season when fall tints are on the leaves, if you could distinguish that as well in June or July when there is no fall tint?

A. Yes.

Q. You can distinguish it just as well?

A. Yes.

Q. And you can distinguish everything else about damage just as well as you could distinguish that?

A. I am giving you my very best judgment. There was no smoke damage in that country then or before that.

Q. And it is your best judgment that you could distinguish the smelter injury just as well among fall tints as you could when there were no fall tints?

A. Taking everything into consideration, I will say yes.

Q. Now, what do you take into consideration?

A. You take into consideration the general conditions of the country.

Q. What kind of general conditions?

A. Crops, ragweeds, and foliage on the trees, and then judging by the dead trees you have mentioned, my best judgment would say, that it is not smoke damage.

Q. How could rag weeds and crops affect discoloration of leaves?

A. I did not say they did.

Q. You said you take that into consideration in determin-
1755 ing whether there was smelter injury on leaves.

A. I sure did.

Q. How does that affect the discoloration on leaves?

A. I did not say that it did.

Q. Did you not say that you took into consideration in deciding whether the discoloration of the leaves was due to fall tint or smelter injury?

A. What I meant to say, and what I do say now, if I did not then say, is that if there is no damage to these things you have mentioned, why then I would give it as my best judgment that it was not smoke damage.

Q. I asked you, what *a*ffect ragweed and crops could have on your judgment as to whether a leaf discolored, was discolored by smelter injury or autum- tint.

A. I don't see how I could answer that question.

Q. (Question last above read).

A. Well, I will say this, if there were dead leaves, and ragweeds and other crops didn't have any discoloration, then it would not be smoke damage.

Q. How would you determine then if the ragweed and the other things were turned brown, and the leaves were turned brown in the fall, how could you distinguish, then, if there had been smelter injury between the smelter injury and the autum- tint?

A. How would I determine that? I do not get the question.

Q. If the ragweed and the crops had turned brown from natural causes in the fall, or from any cause, if they were brown and if the leaves of the trees were brown, if part of those leaves had been turned brown from fall tint, and part had been turned brown from smelter injury, how could you distinguish between the two as to which had done what part of it?

A. I could not?

Q. You could not?

A. No sir.

1756 Q. Then you cannot tell as well in the fall when the autumn- tint is on, as you can in June and July, when there is no autum- tint, can you?

A. No sir.

Q. Picture No. 90, what does that represent?

A. No. 90 was taken from near Burnt Storem *or* the Georgia line, showing the Tennessee Copper Company's plant in the right hand part of the photograph, the Ducktown Sulphur, Copper and Iron Company in the left hand, and Pack Mountain in the background.

Q. Does that truly represent the growth of plant life in that vicinity?

A. At that time, yes sir.

Q. In September of this year?

A. At the time it was taken, yes sir.

Q. That was in September, 1914?

A. Yes sir.

Q. That is in the accute zone of injury, how far from the plant?

A. About two miles and a half from the Tennessee Copper Company and six miles from the Ducktown Sulphur, Copper and Iron Company.

Q. Will you say or not from that photograph and from your knowledge of the conditions immediately surrounding the two plants, that the fumes emitted by the plants are injurious or beneficial to plant life?

A. Yes sir, injurious.

Q. *All* the fumes emitted by the plants of the Tennessee Copper Company and the Ducktown Sulphur, Copper and Iron Company are injurious or beneficial to plant life?

A. Well, If the Fumes strike the plant, it would be injurious.

Q. I am asking, are the fumes, of course taking into consideration that they must come in contact with plant life, beneficial or injurious?

1757 A. Oh, if they hit them, they are injurious.

Q. If you see smoke in a vicinity and smell it, and it smells like the smoke that you smelt near the plants and works of these companies, and a short time thereafter there was injury to the forests and the plant life, over which that smoke had come, would you say or not that that was what injured them?

A. If it did do it, I would say yes.

Q. You mean if those facts were true, you would say "Yes"?

A. I mean, if those facts were true, I would say "yes".

Q. Now, Mr. Reese, have you ever studied map making and drawing to scale?

A. I have had to do with maps a good deal. What do you mean by that?

Q. I mean, have you ever studied the method of making maps of taking surveys for the purpose of making maps?

A. No.

Q. Did you ever make a map from a survey?

A. No sir.

Q. Did you ever run a line, make a survey and thereafter make changes in maps?

A. I have had charge of work where I had it done.

Q. How can you swear positively, Mr. Reese, that these points here designate the exact points at which the photographs that you have introduced were taken?

A. Approximately. I did not say exactly. Approximate—it is true.

Q. Approximately?

A. Yes sir.

Q. And on the scale they might be from a quarter of a mile to two miles different, mightn't they?

A. Well, no, no.

Q. They might not?

A. No sir.

1758 Q. How can you swear that?

A. Well, as I say, approximately. You are speaking of the positions on the photograph?

Q. The yellow points designating the points from which photographs were taken.

A. Well, approximately that is true.

Q. Do you know what scale that map is?

A. It is practically an inch to the mile.

Q. A difference of a quarter of an inch would make a difference of a quarter of a mile?

A. Yes sir.

Q. Do you mean to say that that is all within a quarter of an inch of being correct?

A. Well, no; I said approximately it is true, I did not say it is absolutely true.

Q. Don't you know that the gentleman who made the figures on that map said it had shrunk some, and that the only thing he could say way that it was approximately correct?

A. And that is what I say; it is approximately correct.

Q. There might be a difference of a fraction of an inch and that would be a difference of, or make a difference of, a fraction of a mile.

A. A difference of a part of a mile, yes sir.

Q. In photograph 93, in what direction was the camera pointed when that was taken?

A. Looking west.

Q. Looking west?

A. Yes sir.

Q. Towards what?

A. Showing Tumbling Lead, or what is locally known as Granny Marr Mountain.

Q. You don't know whether that was from a point from which Mr. Adams made his photograph?
A. No sir.

1759 Redirect examination.

By General Fowler:

Q. Mr. Reese, in taking the photographs did you follow the roads and trails that are laid down on the map by the Government?
A. Yes sir. You mean those that are marked on the map?
Q. Yes sir.
A. Yes sir.
Q. Did you or not make a good part of the trip in an automobile?
A. Well, those routes that are marked there are roads; they are generally roads.
Q. After this map was prepared, after it had been photographed, and Mr. Thompson had placed those points on the map did you make a careful examination of it?
A. Yes sir.
Q. And did you observe the roads and creeks and other objects that had been laid down on it by the Government in its Survey?
A. I did, yes sir.
Q. Now, were the points properly represented with reference to those natural objects?
A. I think so, yes sir.

Mr. Hill: We exceot to that evidence as being indefinite and a conclusion, and we except to the question as leading.

Q. As far as you could ascertain?
A. Yes sir.
Q. Now, you were asked about trees turning in the fall: State whether or not all oak trees of the same species will turn exactly at the same rate, or will one tree begin to turn more quickly than another?
A. Some will turn more quickly than others.

Mr. Hill: We except to the question as being leading, and to the answer as being a conclusion, and without any facts stated upon which to base it. 1760

Q. Suppose one oak tree is standing upon a hill side, where it dries out more quickly, and another of the same species is standing in a hollow where the moisture lasts up until in the fall, which one will brown the more quickly?
A. The one on the hill side, where there is not as much moisture as the one where there is moisture.
Q. Is that so with reference to other species?
A. Yes sir.
Q. You were asked if the light will not show differently on the forests at different times of the day, and hence that the photograph will show differently. State whether or not is it true that the forest

will appear differently colored to the natural eye according to the time of day?

Mr. **Hill**: We except to that question as being leading and suggestive of the answer.

A. Yes sir, it will.

Q. I believe you know Dr. Hedgecock?

A. Yes sir.

Q. State whether or not he is present and has been present during the entire taking of these depositions.

A. He has.

Q. And has been prompting counsel for the State of Georgia?

A. Yes sir.

Recross-examination.

By Mr. **Hill**:

Q. Mr. Reese, you stated that, in your opinion, an oak tree that was located on a hill side where the moisture did not remain long, in the fall, would brown quicker than one down in a valley where the moisture stayed.

A. Yes sir.

Q. What about three or four oak trees located on that same hill side?

A. What do you mean by that?

1761 Q. I mean, would one of those turn quicker than another?

A. I think that would depend upon the health of the tree.

Q. Generally speaking though, the change would be about the same?

A. It would depend upon the age and the health of the tree, would be my judgment.

Q. But, generally speaking, it would be about the same?

A. In a general way.

Q. There would not be as much difference between them as there would be between a tree up on a hill and one down in a hollow where moisture was?

A. No sir.

Q. Is that same thing not true as to smelter injury?

A. No, I think the smoke would generally hit it all alike.

Q. You mean to say then that protection, either by a hill side or by other trees, or any protection of the life and vigor of the tree, would have nothing to do with it?

A. Certainly it would.

Q. Then it would affect it about the same as fall tint?

A. Yes.

Q. And the hill side, if the trees were on the far side of it away from the plant, the trees would not be as susceptible to injury as on the near side?

A. I don't know.

Q. The Dr. Hedgecock you refer to is the pathologist of the United States Department of Forestry?

A. I don't know what you call him.

Q. He is a United States Government expert?

A. Yes sir.

Q. You don't know whether he was sent here at the request of the Governor of Georgia by the Secretary of Agriculture of the United States?

A. No sir, I do not.

1762 And further deponent saith not.

SHERMAN REESE,
By R. S. C. HUTCHINSON,
Commissioner.

Sworn to before me this November 9th, 1914.

[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

Mileage, 230.

It is stipulated by counsel for the State of Georgia and the Ducktown Sulphur, Copper and Iron Company that there is a person who is authorized under the Tennessee law to administer oaths and take depositions, before whom these depositions could have been taken, at Ducktown, Polk County, Tennessee, the place of business of the defendant Company, from three to four miles from the line between the state of Tennessee and the County of Fannin in the State of Georgia, and that the majority of the witnesses introduced by the defendant were from the counties of Fannin and Gilmer in the State of Georgia, and that the City of Knoxville, where these depositions are being taken, is one hundred and nine miles in a northerly direction from Ducktown, and one hundred and nine miles from the State of Georgia.

1763 *Certificate.*

I, R. S. C. Hutchinson, the Commissioner before whom the within depositions were taken, hereby certify that I correctly took in short hand and transcribed said depositions.

[SEAL.] R. S. C. HUTCHINSON,
Commissioner.

1764 In the Supreme Court of the United States.

No. 1, Original.

THE STATE OF GEORGIA
vs.
TENNESSEE COPPER COMPANY and DUCKTOWN SULPHUR, COPPER AND IRON COMPANY, LIMITED.

To the State of Georgia:

Take Notice: That beginning on November fifth, 1914, at 10 o'clock a. m., and continuing as long as shall be necessary, at the offices of Fowler and Fowler, Empire Building, Knoxville, Tennessee, I will take the depositions of J. R. Herren, Ham Holt, Z. V. Kimsey, H. H. Chastain, W. P. Harper, T. N. Bennett, John Boatner, A. H. Pack, I. S. Davis, W. W. Thrasher, M. C. Goss, Linnie Clayton, Jason Akins, A. M. Johnson, M. S. Clayton, J. W. Clayton, B. H. Holt, W. T. Higdon, W. E. Rodgers, J. M. Davis, D. Q. Davis, W. D. Smith, Grant Orten, F. E. Garron, John Wilson, Robert Hampton, F. P. Largent, E. L. Stanley, The Entomologist of Tennessee, J. W. Clayton and Professor S. M. Bain, J. H. Quintrell, B. H. Holt and Sherman Reese, James E. Thompson, W. F. Lamoreaux, and others, to be used as evidence on the hearing of the motion heretofore made, of the State of Georgia, for a final decree against this defendant, said evidence to be taken under the permission given by the Supreme Court of the United States on October 19th, 1914, for this defendant to take evidence in rebuttal to the testimony heretofore taken by the State of Georgia.

DUCKTOWN SULPHUR, COPPER AND
IRON COMPANY, LTD.,
By J. A. FOWLER.

1765 No. 1, Original.

THE STATE OF GEORGIA
vs.
TENNESSEE COPPER COMPANY and DUCKTOWN SULPHUR, COPPER AND IRON COMPANY, LIMITED.

I hereby acknowledge service of the within notice for the State of Georgia, and agree that no question shall be made with reference to the number of days said notice is given prior to the taking of the proof.

This October 29, 1914.

WARREN GRICE,
Attorney Gen'l of Georgia.

[End of Vol. II.]